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# Government to Allocate Supply of Chlorine

## Director of Priorities States All Domestic Produced Chlorine Is Subject To Amended Preference Orders After February 1, 1942—Producers and Distributors Are Required To Meet New Demands.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 24, 1941—All chlorine produced in the United States will be subject to direct allocation after February 1, 1942, in accordance with the terms of an amendment to General Preference Order M-19 issued today by the Director of Priorities.

### Shortage Accentuated

War demands for chlorinated products have accentuated the shortage of chlorine which was the occasion for placing chlorine under full priorities control on July 28, 1941.

To facilitate allocation, a new type of requirement is now provided for scheduling orders for chlorine. Regardless of priority ratings, no producer of chlorine may accept orders after the 10th day of any month for delivery in the next calendar month without a specific direction from the Director of Priorities.

No distributor of chlorine may accept orders after the 5th day of any month for delivery in the following month without specific direction from the Director of Priorities.

All producers of chlorine are required to file with the Chemicals Branch of the Office of Production Management in Washington, on or before the 15th of each month, on Form PD-191, a schedule of deliveries to be made the following month.

### Authorization Required After February 1

After February 1, 1942, no deliveries of chlorine may be made without specific authorization from the Director of Priorities. Authorization will be based on a review of the schedules submitted, in the light of defense and essential civilian requirements. If no change in the proposed schedule is made by the Director of Priorities by the 25th day of the month, deliveries in the following month may be made according to the schedule as submitted.

All orders for chlorine must be accompanied by Form PD-190 properly executed.

### Other Provisions

Another provision of the amended chlorine order specifies priority ratings which are to be granted to orders for chlorine for certain purposes. This assignment of ratings appears in the copy of the order attached to this release.

Under the amended order, every producer of chlorine is required to set aside each month 5% of his estimated monthly production of liquid chlorine. The producer is to make no commitments with respect to this chlorine reserve. However, subject to the general provisions of Priorities Regulation No. 1, the reserve chlorine may be sold and delivered if no express order for its disposition has been issued by the Director of Priorities by the 15th day of the month in which the reserve is set aside.

Non-defense as well as defense orders for chlorine must be accepted by producers if a priority rating has been assigned to such orders.

### To Go Into Effect Immediately

Except for the allocation provisions which become effective February 1, 1942, today's amendments to General Preference Order M-19 go into effect immediately and will remain in effect until revoked by the Director of Priorities.

## Newsprint Consumption Up

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 22, 1941—Manufacturers here are beginning to feel the effect of the great boost in newsprint consumption caused by the entry of the United States into the war, and indications are that shipments of newsprint to the United States will be away ahead of those of December, 1940, when they were 220,996 tons. For the 11 months to the end of November Canada had shipped to the United States 2,501,573 tons as compared with 2,594,452 tons for the whole of 1941. It is estimated that the total production of newsprint in Canada when the December returns are in will be found to be about 3,400,000 tons, as compared with 3,418,403, the slight falling off being accounted for by the decline in overseas shipments for which the added demand from the United States has not quite compensated.

# Cornell Purchases Hummel & Downing Co.

## President W. Irving Osborne, Jr., of Cornell Wood Products Co., Announces His Concern Has Acquired Ownership of Hummel & Downing Co. — Will Operate Mill As Subsidiary — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 22, 1941—Announcement was made Friday of last week by W. Irving Osborne, Jr., president of the Cornell Wood Products Company, Cornell, Wis., that his firm had acquired ownership of the Hummel and Downing Company, Milwaukee, Wis. Details of the transaction were not announced except for a statement by Mr. Osborne that the Milwaukee plant would be operated separately as a wholly owned subsidiary.

Hummel and Downing plant has operated for many years in the manufacture of box and container boards, and container and corrugated fiber, operating two machines with widest trimmed sheets 118 and 127 inches. The capacity is 400,000 pounds daily. The mill has fourteen 1600-pound beaters and eight Jordans.

The Cornell mill also has been engaged in the manufacture of container and specialty boards as well as wall board, operating two machines with trim sizes of 100 and 130 inches. The mill capacity is 350,000 pounds in twenty-four hours. The company also operates a ground wood mill with twelve grinders and ten wet machines turning out 160,000 pounds in twenty-four hours.

### Mill Employees Contribute to Red Cross

Employees of various mills are doing their part in making contributions for war needs. The employees' union of the Kimberly-Clark Corporation's mill at Kimberly, Wis., was the first to contribute to the county Red Cross drive, and presented Mrs. Oscar Ehlke, chairman, with a check for $250 through Otto K. Hannemann, president of the union.

The local of International Brotherhood of Pulp, Sulphite and Paper Mill Workers at the Ahdawagan Paper Products Company, Wisconsin Rapids, Wis., purchased $100 worth of defense bonds out of its treasury.

### Christmas Shutdowns Will be Short

Christmas shutdowns in Wisconsin mills will be brief this year, due to the tremendous production demands. Most of them will release their employees except for certain departments at noon on Wednesday, December 24, and will resume work on Friday morning, December 26.

Numerous Christmas parties are being held. Workers of the Neenah Paper Company, Neenah, Wis., held a dinner at Valley Inn, Neenah, Sunday evening, December 21, at which approximately 300 were present. Lt. Col. Dan A. Hardt, formerly of the sales and advertising department, fulfilled his task as toastmaster despite his anticipated Christmas furlough being cut short. He travelled by airplane from Jacksonville, Fla. Children of the workers were given a party during the afternoon.

More than 200 employees and their wives of the Ansul Chemical Company, Marinette, Wis., gathered at Hotel Marinette Wednesday evening of last week for a turkey dinner. H. V. Higley, president, presided as toastmaster, and was assisted in the program by F. J. Hood. Entertainment was enjoyed and gifts were distributed.

### Kimberly-Clark Start Saving Program

In order to conserve materials, especially those difficult to obtain, the Kimberly-Clark Corporation has started a conservation program at its mill at Kimberly, Wis. Every employee will be enlisted in the campaign to prevent waste in materials and supplies.

A committee of ten members has been appointed to head up the campaign, and will be assisted by 22 subcommittees which will represent the mill departments. Departments have been grouped in units. In order to show actual accomplishment, each unit will have a poster display in the main hall at the mill to show what has been done. The mill and personnel office will put up the first display December 23, and other units will follow in regularly until May 19. The committee from each unit will include the foremen and union directors of the departments. The conservation will become a permanent policy.

### Walter Schewe Heads Benefit Association

Walter Schewe was elected president of the Employes Mutual Benefit Association of the Marinette Paper Company, Marinette, Wis., at the annual meeting Thursday of last week, succeeding Antone Elson. Lawrence Kuntz was named vice-president, E. O. Rynning, secretary, and M. C. Dickoff, treasurer. Frank Hokenson, Clifford Stafford and Morris Tiege were elected directors, and Lawrence Camps was chosen chairman of the entertainment committee. A Boy Scout troop sponsored by the Association gave demonstrations for entertainment. The troop is to be presented with a set of flags.

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## Trade Unions

Under the title, "Trade Unions Fight for What?", Herbert Tracey has outlined the growth and explained the significance of the great trade movement in England. This is the first American edition, published by The Chemical Publishing Company, 234 King street, Brooklyn, N. Y. The price is $2 a copy.

The author is a labor publicist and has been closely connected with the Labor Party press. The contents include several important contributions to an understanding of the labor movement, why labor makes war, the supply of labor, wage policy and arbitration methods. Other chapters discuss rearmament and civil defense, raw material and food control.

The concluding chapter is on explanation of trade unionism in socialist transition, discusses errors of practice socialism and the real mission of trade unionism.

# Current Paper Supply Unequal to Demand

## Chicago Reports Difficulty In Delivering Record-Breaking Orders For Many Kinds of Paper—Ceiling Stops Waste Paper Collections —Paper and Allied Lines Show Improvement—Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 22, 1941—The Chicago paper market is today taxing the ingenuity of every paper sales representative, jobber and salesmen in this area. From several quarters come indications that the business is going to those firms who are adept in psychology as well as in their ability to find substitutes, dig up odds and ends of paper and otherwise satisfy a clientele itself pressed for performance.

Outside of this, the market is colorless because it continues to be impossible to get paper and thus to make any measure of deliveries. The allocations arrangements have proven inadequate and the actual declaration of war has served not to create any hysteria but to add to the burden of a few weeks ago. All markets are at top levels and the condition in krafts, sulphites, groundwoods, newsprints and books and covers remains unchanged. It is reported that surveys are continuing not only to eliminate wastes whenever possible but to keep apace with rising labor and production costs for the time when readjustments in paper prices will be forced upon the industry and proof of need required from the Government itself. The waste paper situation is somewhat better but the fact remains, it is said, that the goal of complete conservation here cannot be reached until it becomes worthwhile for paper consumers to prepare waste paper for re-use.

### Parker Thomas & Tucker to Move

Parker Thomas & Tucker, well known Chicago paper jobbing firm, is getting some valuable publicity out of its current move to larger and more modern quarters. Anxious to continue services without any interruption, the company has kept the exact date of its move—and the place—somewhat of a secret but the word has leaked out from a number of sources that the move will be made on January 5 with both warehouse and offices to be transferred from 520 S. Canal to the new location at 512 Peoria street on Chicago's very near West side. A new and attractive calendar announcing the move, with a picture of the new headquarters and an announcement that efforts will be made to make the Parker Thomas & Tucker service "the most efficient in Chicago", has already reached some members of the trade. Whereas the present location centers around five floors of space, the new arrangement on Peoria street finds all activities centered in a block long basement and first floor sweep which should make for that efficiency and economy desired by the progressive Chicago firm. During the year the company also expects to add display accommodations and other newest merchandising attributes to continue to deserve its reputation for efficiency in operation. The new telephone number is to be Chesapeake 2300.

### Ceiling Stops Waste Paper Collections

Chicago retail merchants—and the top executives of these concerns—have recently been asking how the Government expects to really conserve waste paper without doing something about the ceiling on waste paper prices. With huge volumes of waste paper—usually burned—as a problem, the retailers are wishing that it might be at least slightly profitable for them to go to the rather considerable expense of sorting and baling the paper and making it available for pick-up. They feel that to permit a higher price on a product not directly utilized for war materials would be to greatly speed up the accumulation of waste paper in this area. It has been reported that the waste material dealers are quite well aware of the wishes of the retail industry but are powerless to do anything about it. The suggestion as to the price ceiling on waste paper has, however, been sent to the OPM by certain branches of the retailing industry.

### Discuss Increased Shipping Costs

Chicago is likely to be the headquarters of a number of paper manufacturing transportation officials on January 5 when hearings begin in Chicago on the petition of the railroads of the nation for permission to increase rates by 10 per cent to meet the new labor-management wage agreement. Hearings will be held at the Morrison Hotel before Commissioners Clyde B. Aitchison, C. D. Mahaffie and Walter M. W. Splawn. Oral argument will be held before the full Commission at Washington after the Chicago hearings are concluded.

### Labor Report Shows Improvement

The paper goods, printing and publishing industry in Illinois reported a total of 39,883 wage earners the week of October 15, an increase of 4.5% over the preceding month. Payrolls amounted to $1,356,453 or a 6.6% increase over the previous month. Manufacturers of paper boxes, bags and tubes, 66 of them, reported a decline of 1.1% in wage earners and of 1.2% in payrolls over the same period as compared to the general industry group report. The report of the Illinois Department of Labor says "Considerably better than usual gains in both employment and payrolls were noted in the paper goods, printing and publishing group of industries. Small declines in both series were noted for the paper boxes, bags and tube industry and small increases for the other paper goods industry. Substantial increases in both series were reported by the four types of printing and publishing industries".

## SKF Wins Navy E

More than 4200 employees of SKF Industries, Inc., Philadelphia, have been awarded the Bureau of Naval Ordnance Flag and the Navy "E" Pennant for Excellence of performance in fulfilling Naval Ordnance contracts for ball and roller bearings. Rear Admiral A. E. Watson made the presentation, and William L. Batt, SKF President, gave the acceptance speech.

# Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 24, 1941—Government Printing Office has received the following bids for 147,600 pounds of telephone book news in 28 inch rolls: R. P. Andrews Paper Company, 5.9225 cents; Mudge Paper Company, 5.78 cents; Barton, Duer & Koch Paper Company, 5.67 cents; and Cauthorne Paper Company, 5.1475 cents.

For 1550 pounds of 28 x 34 buff colored correct bond, 25% rag: Aetna Paper Company, 14.31 cents; R. P. Andrews Paper Company, 14.75 cents; and Stanford Paper Company, 18.2 cents.

For 400,000 sheets of 22 x 34 white gummed paper: Whitaker Paper Company, $16.20, $15.72 and $15.32; Mudge Paper Company, $15.74 (100,000 sheets only); Stanford Paper Company, $17.82; Barton, Duer & Koch Paper Company, $15.72 and $14.89; Bradner Smith & Company, $15.86, $15.39, and $15.00; Eureka Specialty Company, $13.90; Graham Paper Company, $16.00, $15.55 and $15.15; and Paper Corp. of U. S., $13.30.

For 8,200 sheets of 9 x 14 blue cover paper: Middlesex Products Company, $16.50 per M sheets; Bradner Smith & Company, $17.91; Mudge Paper Company, $17.88; Whitaker Paper Company, $18.23; and Barton, Duer & Koch Paper Company, $19.00.

For 24,800 pounds of 50% rag, 23 x 36 buff ledger paper: Resolute Paper Products Company, 16.47 cents; Walker Goulard Plehn Company, 17.7 cents; Barton, Duer & Koch Paper Company, 17.65 cents; and Paper Corp. of U. S., 17.57 cents.

For 252,000 pounds of 38 x 50 coated book paper: Rex Paper Company, 8.868 cents; Whitaker Paper Company, 8.85 cents; R. P. Andrews Paper Company, 9.21 cents; Bulkley Dunton & Company, 9.75 cents less 2%; Marquette Paper Company, 8.9 cents; Paper Corporation of U. S., 8.88 cents; and Butler Company, 9.32 cents.

For 591,000 pounds of 25% rag, 38 x 48½ mimeograph paper: Old Dominion Paper Company, 11.02 cents; Bradner Smith & Co., 11 cents (33,000 pounds only); and Cauthorne Paper Company, 11 cents (200,000 pounds only).

### Paper Awards

During the past two weeks the Government Printing Office has announced the following paper awards for bids on the open market:

Old Dominion Paper Company will furnish 56,000 pounds of 50% rag, 31 x 44 light weight M.F. book paper at 17.47 cents and R. P. Andrews Paper Company will furnish 170,000 pounds of 39⅜ x 66 white sulphite writing paper at 7.9 cents. Kalamazoo Paper Company will furnish 120,000 pounds of M.F. book paper in 28½ inch rolls at 7.15 cents and the same firm will furnish 42,900 pounds of 42 x 32 machine finish book paper at 6.9 cents.

R. P. Andrews Paper Company will furnish 119,000 pounds of white antique book paper in 62½ inch rolls at 6.76 cents. Walker Goulard Plehn Company will furnish 103,200 pounds of 35 x 46, 50% rag white bond paper at 15.85 cents. Mathers-Lamm Paper Company will furnish 2,700 pounds of 21 x 33 white tissue paper at 14.93 cents. R. P. Andrews Paper Company will furnish 58,000 pounds of 20 x 25 tan bristol board at 11.05 cents. Same firm will also furnish 300,000 pounds of same 25 x 38 at 11.05 cents, Andrews Company will also furnish 7,000 pounds of 40 x 48 rope manila at 21.25 cents.

Mathers-Lamm Paper Company will furnish 15,000 pounds of 25 x 34 binders board at 4.08 cents and the same firm will also furnish 25,000 pounds of same 25 x 30 at the same price. Mathers-Lamm Company will also furnish 10,000 pounds of binders board, 34 x 44 at 4.08 cents and the Mudge Paper Company will furnish 1,600 pounds of 38 x 50 goldenrod coated book paper at 14.42 cents.

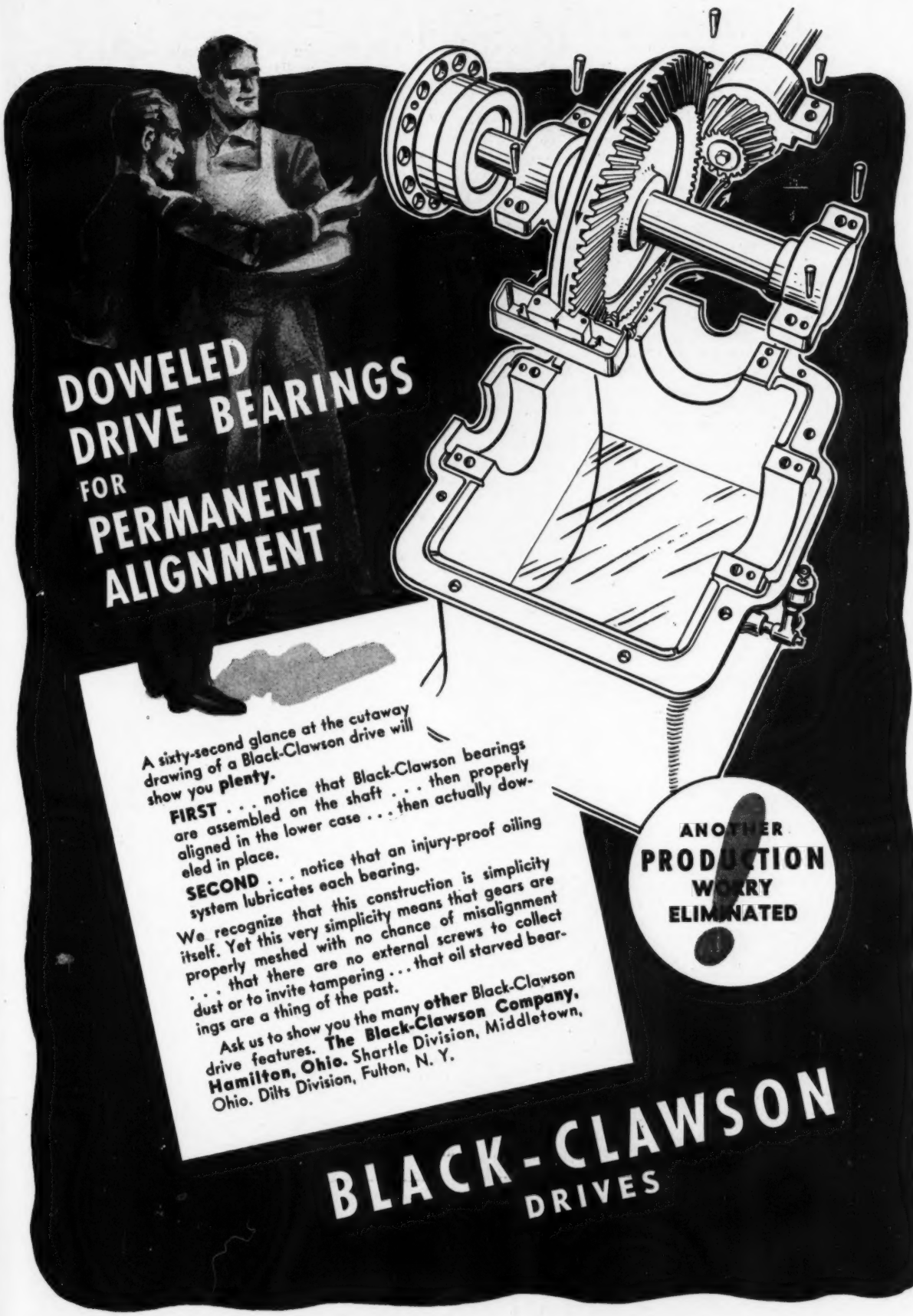
R. P. Andrews Paper Company will furnish 32,000 pounds of 25% rag, 22 x 34 yellow bond paper at 14.3 cents and the Mudge Paper Company will furnish 10,108 pounds of 100% rag, 18½ x 42 white ledger paper at 26.87 cents. Old Dominion Paper Company will furnish 19,800 pounds of 50% rag, 26 x 34 white bond paper at 15.744 cents and the Paper Corp. of U. S. will furnish 160,000 pounds of 35 x 45 white offset book paper at 9.2 cents. R. P. Andrews Paper Company will furnish 179,000 pounds of 33 x 43 white antique book paper at 7.26 cents.

Walker Goulard Plehn Company will furnish 21,525 pounds of 25% rag, 32 x 42 cherry bond paper at 14.75 cents and the same firm will also furnish 13,650 pounds of 50% rag, 22½ x 28½ buff index paper at 16.89 cents. The same will also furnish 29,100 pounds of 50% rag, 21 x 32½ yellow index paper at 16.89 cents, and 58,200 pounds of 50% rag, 21 x 32½ buff index paper at 16.89 cents. Barton, Duer & Koch Paper Company will furnish 36,850 pounds of 75% rag, 24 x 38 laid antique book paper at 13.95 cents.

Whiting Paper Company will furnish 484,500 pounds of 25% rag, 31½ x 48 white bond paper at 14.5 cents, and Mudge Paper Company will furnish 250,000 pounds of white supercalendered book paper in 38 inch rolls at 7.14 cents. Walker Goulard Plehn Company will furnish 25,000 pounds of 50% rag, 32 x 42 white manifold paper at 21.5 cents and Paper Corporation of U. S. will furnish 35,730 pounds of 100% rag, 35 x 46 white chart paper at 23.65 cents.

Paper Corp. of U. S. will also furnish 37,730 pounds of 100% rag, 34 x 50 white chart paper at 23.65 cents and the same firm will also furnish 86,280 pounds of 100% rag, 35 x 54 same at 23.65 and 24.5 cents. Cauthorne Paper Company will furnish 147,600 pounds of telephone book news paper in 28 inch rolls at 5.1475 cents and the Aetna Paper Company will furnish 1,550 pounds of 25% rag, 28 x 34 buff colored correct bond paper at 14.31 cents. Paper Corporation of U. S. will furnish 400,000 sheets of 22 x 34 white gummed paper at $13.30 per M sheets.

Stanford Paper Company will furnish 300,000 pounds of 38 x 48 M.F. book paper at 7.25 cents and Butler Company will furnish 382,000 pounds of supercalendered book paper in 38 inch rolls at 8.1 cents. Marquette Paper Company will furnish 52,500 pounds of 31¼ x 45½ M.F. book paper at 8.36 cents and the same firm will also furnish 67,200 pounds of 41 x 52 M.F. book paper at 7.65 cents. Same firm will furnish also 21,900 pounds of 32 x 48 supercalendered book paper at 8 cents and the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Mead Sales Company will furnish 384,000 pounds of 38 x 48 supercalendered book paper at 7.19 cents.

Frank Parsons Paper Company will furnish 4,100 pounds of 24 x 32, 25% rag, blue bond paper at 14.38 cents and the same company will also furnish 12,878 pounds of 25% rag, 34 x 44 blue bond paper at 14.38 cents, and 12,700 pounds of the same 24 x 38 at 17.66 cents. Marquette Paper Company will furnish 132,000 pounds of 38 x 48 supercalendered book paper at 7.35 cents and the same firm will also furnish 167,000 pounds of same in 38 inch rolls at 7 cents. Kalamazoo Paper Company will furnish 400,000 pounds of 38 x 48 supercalendered book paper at 7.3 cents and the Paper Corporation of U. S. will furnish 400,000 pounds of 38 x 48 M.F. book paper at 7.32 cents. Whiting Paper Company will furnish 128,000 pounds of 25% rag, 34 x 44 yellow bond paper at 15.25 cents and the Old Dominion Paper Company will furnish 20,400 pounds of 21 x 31 blue wood bristol board at 6.244 cents.

Paper Corporation of U. S. will furnish 23,000 pounds of 32 x 42 salmon sulphite writing paper at 10.45 cents and the same firm will furnish 28,700 pounds of the same No. 40 at 10.45 cents. R. P. Andrews Paper Company will furnish 100,500 pounds of white sulphite ledger paper at 8.45 cents, and the same firm will also furnish 215,200 pounds of 38 x 48 supercalendered book paper at 7.3 cents.

Resolute Paper Products Corporation will furnish 24,800 pounds of 23 x 36, 50% rag, buff ledger paper at 16.47 cents and Walker Goulard Plehn Company will furnish 10,000 pounds of 50% rag, 22½ x 28½ blue index paper at 17.35 cents. Baxter Paper Company will furnish 24,450 pounds of 25% rag, 28 x 34 yellow bond paper at 14.31 cents. Paper Corp. of U. S. will furnish 135,600 pounds of 24½ x 32½ white sulphite index paper at 10.4 cents. Walker Goulard Plehn Company will furnish 43,000 pounds of 25% rag, 32 x 42 pink bond paper at 13.9 cents.

## Gives Dinner to W. J. McLellan

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 19, 1941—Company associates and mill friends gathered for a complimentary dinner to W. J. McLellan at the Harvard Club of Boston on the evening of December 9—the year Nineteen Forty One, marking his seventieth birthday and the fiftieth anniversary of his business association with Carter, Rice & Co., Boston. Beginning work in 1891 as a young man recently arrived from Sydney, Nova Scotia, he soon made a place for himself under J. Richard Carter's leadership and has continued to make a wide circle of friends ever since. The testimonials of respect and affection tendered at the dinner were ample evidence of this. Bill is still going strong and is at his desk each day supervising the activities of the company's Candy Paper Department.

In addition to friends in the trade and all the directors of Carter, Rice & Co., there were present four others with records of over fifty years of continuous service with Carter, Rice & Co.—J. H. Ellis, and Wilbur L. Woodbury, now retired, and J. F. O'Connell and Edward P. Dudley still on the active list.

At the conclusion of the dinner the party enjoyed the Bruins-Black Hawks Hockey Game in a group and listened to the broadcast of President Roosevelt's speech.

## Dayton Envelope Co. Buys Building

Officials of the Dayton Envelope Company, Dayton, Ohio, an affiliate of the Howard Allied Mills, have just announced the purchase of the building that the company has occupied since its organization. The property provides approximately 150,000 square feet of floor space and is said to have cost in excess of $400,000. The building was purchased from the Ohmer estate and, previous to occupation by the Dayton Envelope Company was known as the Naval Ordnance Building.

In announcing this purchase, H. A. Legge, managing director of the Howard Allied Mills, explains that the constantly increasing volume of business en-

PLANT OF DAYTON ENVELOPE CO.

joyed by the Dayton Envelope Company, under the capable and aggressive management of John E. Minch, makes it necessary to view the future with an eye toward the need for rearrangement or extension of the present floor space, in order to uphold the excellent service record of the company. Pyramiding sales increases have extended the company's output more than 300% in the past three years. The original equipment has been constantly supplemented by new and modern machinery.

With the purchase of its own building the Dayton Envelope Company celebrates the completion of its sixth year, during which time the company has become a leading manufacturer in its field.

Using papers supplied by its allied mills, the Howard Paper Mills, Urbana, Ohio; the Maxwell Paper Mills, Franklin, Ohio; and the Aetna Paper Mills, Dayton, Ohio, it has developed a complete line of envelopes which are sold exclusively through paper jobbers. Central location with reference to the American market and its affiliation with the Howard Allied Mills has given the company a strong advantage in establishing its present position among the nation's largest manufacturers of envelopes. Officers of the company are Maxwell Howard, president; Ward R. Howard, vice-president; H. H. Hoffman, secretary; L. S. Howard, treasurer.

## Goes with Hennepin Paper Co.

We wish to announce that L. E. Sovereign, formerly of the Watab Paper Company at Sartell, Minn., has joined our organiation of the Hennepin Paper Company at Little Falls, Minn., in the capacity of chief engineer and safety director.

*To the Paper Industry*

*. . . friends whom we have been privileged to serve . . . we express our appreciation of a year of pleasant association with a*

# Merry Christmas

**NATIONAL ANILINE DIVISION**

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET NEW YORK, N. Y.

# Paper and Paperboard Production and Papermaking Machines in 1940

This is the seventh of a series of biennial reports for the even-numbered years alternating with the years covered by the biennial census of manufactures. The two series provide detailed production statistics for consecutive years (see Table 1, footnote 1).

### Paper-making Machines

The distribution of machines by number as given in Table 3 is based on the general or usual output of these machines. In cases where one or more machines of the same type are used for producing two or more kinds of paper or board, the distribution by capacity has been made according to the several kinds of paper manufactured.

TABLE I.—PAPER AND PAPERBOARD—PRODUCTION, BY KIND AND QUANTITY, FOR THE UNITED STATES: 1940, 1939, AND 1938

| Kind | Quantity (Short tons) 1940 | 1939 | 1938 [1] |
|---|---|---|---|
| Aggregate | 14,483,709 | 13,509,642 | 11,380,814 |
| Newsprint, total | 1,056,304 | 954,259 | 832,331 |
| Standard, in rolls | 1,028,840 | 925,897 | [2] 832,331 |
| Standard, in sheets, and other special grades | 27,464 | 28,362 | |
| Ground-wood printing and specialty papers, total | 550,453 | 540,342 | 435,651 |
| Hanging | 142,278 | 116,781 | 87,176 |
| Catalog | 96,416 | 80,632 | 91,782 |
| Novel-news and news-tablet | 26,279 | 39,159 | |
| Poster and lining | 28,570 | 33,372 | 256,693 |
| Rotogravure | 148,396 | 106,121 | |
| Other ground-wood papers | [3] 108,514 | [3] 164,277 | |
| Book paper, total | 1,655,423 | 1,534,591 | [4] 1,336,814 |
| Machine-finished, sized, and supercalendered: | | | |
| Free from ground wood | 898,119 | | |
| Containing ground wood | 218,279 | 1,022,120 | |
| Converting paper: | | | |
| Body stock for coated paper: | | | |
| Free from ground wood | 227,725 | 265,635 | |
| Containing ground wood | 7,897 | 9,374 | 1,336,814 |
| Other converting paper | 137,047 | 99,784 | |
| Lithograph | 32,644 | 43,449 | |
| Offset | 72,842 | 66,097 | |
| Other book paper | 60,870 | 28,132 | |
| Cover paper | 26,944 | 19,401 | 20,216 |
| Text paper | 11,065 | 12,339 | [5] |
| Writing paper (fine), total | 599,452 | 594,594 | 481,719 |
| One-hundred-per cent rag | 12,143 | 13,420 | |
| Less than 100% to 50% rag | 33,816 | 28,017 | 69,468 |
| Less than 50% rag | 47,455 | 42,460 | |
| Sulphite bond | 364,288 | 364,054 | 304,282 |
| Other chemical wood-pulp writing papers | 141,750 | 146,643 | 107,969 |
| Wrapping paper, total | 2,500,818 | 2,238,993 | 1,865,856 |
| Unbleached sulphite and semi-bleached sulphate: | | | |
| Butchers' and grocers' paper | 138,252 | 140,952 | |
| Bag | 11,772 | [6] | |
| Machine-glazed wrapping | 16,896 | 35,711 | |
| Other grades | 42,856 | 107,007 | |
| Bleached sulphite and bleached sulphate | | | |
| Waxing paper (18 lbs. and up) | 149,379 | 141,007 | [6] |
| Bag | 49,322 | 38,340 | |
| Other grades | [7] 168,540 | [7] 165,410 | |
| Wrapping and envelope manila | 25,042 | 19,131 | |
| Greaseproof | 21,653 | 18,928 | |
| Glassine | 53,826 | 55,516 | |
| Kraft wrapping: | | | |
| Machine-finished: | | | |
| Wrapping | 475,479 | 398,580 | |
| Converting: | | | |
| Bag | 717,163 | 615,365 | |
| Other | 296,507 | 176,144 | 1,216,030 |
| Machine-glazed: | | | |
| Wrapping | 50,584 | 48,342 | |
| Converting (bag and other) | 43,962 | 42,603 | |
| Bogus and screenings | 26,961 | 29,632 | |
| Heavy (mill wrappers, etc.) | 46,155 | 37,352 | |
| Rope and jute | 17,307 | 22,340 | [8] |
| Tagboard, light manila board, and pattern | 43,302 | 49,008 | |
| Other wrapping paper | [9] 105,860 | [9] 97,625 | [10] 649,826 |
| Tissue paper, total | 761,712 | 665,723 | 548,943 |
| High-grade tissue (cigarette, condenser, carbon, etc.) | 27,818 | 17,294 | |
| Waxing (up to 18 lbs.) | 35,865 | 39,147 | [11] |
| Wrapping tissue (up to 18 lbs.) | 67,970 | 56,263 | |
| Toweling | 155,754 | 129,105 | 104,951 |
| Toilet tissue | 316,386 | 285,085 | 264,380 |
| Napkin stock | 73,191 | 70,098 | |
| Pattern tissue | 3,494 | 2,305 | |
| Sales-book tissue | 815 | 2,319 | [11] |
| Carpet twisting | 12,100 | 7,305 | |
| Other tissue | 68,319 | 56,802 | 179,612 |
| Absorbent paper, total | 129,410 | 121,717 | 126,320 |
| Blotting | 9,993 | 10,693 | |
| Filter | 2,625 | 1,505 | |
| For vulcanized fiber | 18,493 | 13,647 | 126,320 |
| For parchmentizing | 24,654 | (12) | |
| Other absorbent paper [13] | 73,645 | 95,872 | |
| Building paper, total | 682,460 | 659,090 | 570,454 |
| Sheathing paper | 43,629 | 44,408 | |
| Felts | 589,165 | 567,866 | 570,454 |
| Asbestos-filled and asbestos paper | 44,655 | 42,615 | |
| Other building paper | 5,011 | 4,201 | |
| Other paper | 60,120 | 63,625 | 58,743 |
| Boards, total | 6,449,548 | 6,104,968 | 5,103,767 |
| Container boards: | | | |
| Liners: | | | |
| Kraft | 1,461,399 | 1,385,523 | |
| Jute | 788,800 | 819,654 | |
| Other | 51,635 | 137,968 | |
| Chip (plain and test) | 441,428 | 450,995 | 2,631,318 |
| Straw (for corrugated-container use) | 437,782 | 399,189 | |
| Other container boards | 253,790 | 168,112 | |
| Folding boxboards (bending): | | | |
| Manila-lined (all lined boards) | 698,168 | 784,725 | |
| Patent-coated | 387,894 | 262,029 | 1,221,047 |
| Other folding boxboards | 330,390 | 313,207 | |
| Set-up boxboards (nonbending): | | | |
| Chip and straw | 385,142 | 414,335 | |
| Newsboard | 299,037 | 251,959 | 608,867 |
| Other (including tube, egg-case, etc.) | 214,370 | 199,191 | |
| Binder's board | 25,606 | 28,054 | 34,241 |
| Cardboard: | | | |
| Blanks and miscellaneous | 25,138 | 21,911 | |
| Clay-coated cardboard | 23,450 | 31,669 | 47,371 |
| Photomounts and other cardboard | 5,195 | 5,294 | |
| Bristol board: | | | |
| Index | 31,070 | 28,782 | |
| Mill (including specialties) | 32,830 | 45,429 | 52,223 |
| Uncoated postcard | 6,574 | 5,263 | |
| Leatherboard | 15,706 | 25,714 | 18,355 |
| Pressboard | 9,443 | 7,619 | 10,199 |
| Building boards: | | | |
| Wallboard | 42,748 | | |
| Insulating | 12,004 | 114,505 | 118,124 |
| Other | 24,691 | | |
| Other boards | 345,258 | 203,841 | 362,022 |

[1] The questionnaires used for collecting data for 1938 were in less detail than those used for subsequent years; hence the figures are not strictly comparable in all cases.

[2] "Standard, in rolls and sheets," 828,267 tons; "Other, special grades," 4,064 tons.

[3] Includes data for "Printing" paper, not shown separately to avoid disclosing figures for individual establishments.

[4] Reported as "Book paper, uncoated."

[5] Included with "Book" paper.

[6] Included with "Other grades"; not shown separately to avoid disclosing figures for individual establishments.

[7] Includes data for "Machine-glazed wrapping" paper; not shown separately to avoid disclosing figures for individual establishments.

[8] Not called for separately, included with "Other wrapping paper."

[9] Includes data for "Vegetable and other imitation parchment"; not shown separately to avoid disclosing figures for individual establishments.

[10] Includes figures for items covered by footnote 8.

[11] Not called for separately, included with "Other tissue."

[12] Combined with "Other absorbent paper," to avoid disclosing figures for individual establishments.

[13] Includes data for "Matrix paper and board"; not shown separately to avoid disclosing figures for individual establishments.

HERE'S a way to put your mill in better shape for increased output in 1942—with *present* machines and equipment: Call in a Gulf engineer and let him work with your operating men to improve lubrication practice. For the proper application of the right lubricants is a vital requirement for maximum production—it helps to insure full capacity performance from machines — and freedom from breakdowns and mechanical troubles.

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December 25, 1941

TABLE 2.—PAPER AND PAPERBOARD—PRODUCTION, BY QUANTITY, BY STATES: 1940, 1939, AND 1938

[This table shows, by States, the output for which separate figures can be given without disclosing the production of individual establishments]

| State | Quantity (Short tons) 1940 | 1939 | 1938 |
|---|---|---|---|
| United States | 14,483,709 | 13,509,642 | 11,380,814 |
| California | 329,082 | 294,846 | 242,533 |
| Connecticut | 174,496 | 168,729 | 160,272 |
| Delaware | 29,777 | 14,843 | 35,314 |
| Florida | 392,003 | 370,778 | 273,048 |
| Illinois | 610,769 | 571,589 | 515,227 |
| Indiana | 252,435 | 267,056 | 183,547 |
| Louisiana | 753,752 | 593,902 | 468,808 |
| Maine | 1,073,039 | 1,034,976 | 882,171 |
| Maryland | 161,709 | 155,525 | 131,993 |
| Massachusetts | 518,764 | 519,459 | 439,499 |
| Michigan | 1,239,381 | 1,225,977 | 1,011,789 |
| Minnesota | 300,563 | 301,774 | 246,722 |
| New Hampshire | 169,059 | 166,211 | 140,739 |
| New Jersey | 780,151 | 740,691 | 626,274 |
| New York | 1,455,573 | 1,386,857 | 1,178,912 |
| North Carolina | 154,232 | 128,022 | 111,709 |
| Ohio | 997,867 | 961,265 | 827,340 |
| Oregon | 310,870 | 260,402 | 234,879 |
| Pennsylvania | 987,650 | 916,152 | 759,121 |
| Texas | 71,037 | (1) | (1) |
| Vermont | 77,046 | 83,298 | 70,700 |
| Virginia | 577,625 | 510,844 | 412,650 |
| Washington | 600,180 | 552,577 | 472,185 |
| West Virginia | 51,825 | 55,897 | 51,334 |
| Wisconsin | 1,072,150 | 1,010,974 | 882,445 |
| Other Southern States [2] | 1,035,068 | 943,968 | 798,267 |
| Other States [3] | 307,606 | 273,030 | 223,336 |

[1] Included in figures for "Other Southern States."

[2] For all years: Alabama, Arkansas, Georgia, Mississippi, South Carolina; in addition, Texas for 1939 and 1938.

[3] For all years: District of Columbia, Iowa, Kansas, Missouri, Rhode Island, Tennessee; in addition, Colorado for 1938 only.

TABLE 3.—PAPER MACHINES, BY TYPE, NUMBER, AND CAPACITY, AND BY KIND OF PAPER MADE: 1940, 1939, AND 1938

[See "Paper-making machines," p. 31]

| Kind of paper made | Total capacity per year of 310 days (Short tons) | Fourdrinier Number | Fourdrinier Capacity per 24 hours (Short tons) | Cylinder Number | Cylinder Capacity per 24 hours (Short tons) |
|---|---|---|---|---|---|
| Total: | | | | | |
| 1940 | 16,890,970 | 902 | 31,514 | 699 | 22,973 |
| 1939 | 16,557,410 | 885 | 30,383 | 684 | 23,028 |
| 1938 | 16,191,300 | 885 | 29,616 | 690 | 22,614 |
| Newsprint: | | | | | |
| 1940 | 1,075,080 | 47 | 3,468 | ... | ..... |
| 1939 | 988,280 | 40 | 3,188 | ... | ..... |
| 1938 | 960,380 | 42 | 3,098 | ... | ..... |
| Ground-wood printing and specialty papers (hanging, catalog, novel-news, news-tablet, etc): | | | | | |
| 1940 | 617,830 | 50 | 1,989 | 2 | 4 |
| 1939 | 631,470 | 56 | 2,033 | 1 | 4 |
| 1938 | 597,060 | 54 | 1,926 | ... | ..... |
| Book paper: | | | | | |
| 1940 | 1,959,820 | 200 | 6,308 | 2 | 14 |
| 1939 [1] | 1,936,260 | 210 | 6,242 | 1 | 4 |
| 1938 [1] | 1,977,490 | 216 | 6,374 | 1 | 5 |
| Cover and text papers: | | | | | |
| 1940 | 50,220 | 7 | 153 | 2 | 9 |
| 1939 [1] | 30,070 | 5 | 93 | 1 | 4 |
| 1938 [1] | 65,100 | 11 | 205 | 2 | 5 |
| Writing paper: | | | | | |
| 1940 | 728,190 | 136 | 2,344 | 1 | 5 |
| 1939 | 747,100 | 134 | 2,379 | 4 | 31 |
| 1938 | 676,110 | 132 | 2,181 | ... | ..... |
| Wrapping (or coarse) paper: | | | | | |
| 1940 | 2,840,220 | 212 | 8,632 | 36 | 530 |
| 1939 | 2,609,580 | 214 | 7,898 | 37 | 520 |
| 1938 | 2,503,560 | 200 | 7,596 | 40 | 480 |
| Tissue paper: | | | | | |
| 1940 | 839,790 | 147 | 2,194 | 93 | 515 |
| 1939 | 792,980 | 125 | 1,882 | 92 | 676 |
| 1938 | 668,980 | 114 | 1,732 | 70 | 426 |
| Absorbent paper: | | | | | |
| 1940 | 186,000 | 40 | 570 | 12 | 30 |
| 1939 | 165,850 | 36 | 495 | 16 | 40 |
| 1938 | 188,170 | 48 | 541 | 24 | 66 |
| Building paper: | | | | | |
| 1940 | 958,210 | 6 | 365 | 67 | 2,726 |
| 1939 | 938,370 | 8 | 377 | 61 | 2,650 |
| 1938 | 890,010 | 7 | 351 | 71 | 2,520 |
| All other papers: | | | | | |
| 1940 | 81,840 | 12 | 168 | 8 | 96 |
| 1939 | 86,490 | 12 | 181 | 10 | 98 |
| 1938 | 128,650 | 14 | 290 | 13 | 125 |
| Boards: | | | | | |
| 1940 | 7,553,770 | 45 | 5,323 | 476 | 19,044 |
| 1939 | 7,630,960 | 45 | 5,615 | 461 | 19,001 |
| 1938 | 7,535,790 | 47 | 5,322 | 469 | 18,987 |

[1] Equipment for "Text" paper included in "Book" paper.

## Engineers Urged to Help

Robert E. Doherty, president of the Carnegie Institute of Technology and chairman of the Engineering Council for Professional Development, in an address yesterday before the opening session of the annual meeting of the American Society of Mechanical Engineers, called upon the country 75,000 engineers, along with professional men from other fields, to "break away from their traditional attitude of professional self-sufficiency, step into the rapidly widening breach on the social and economic front and help save America."

"After the war," Mr. Doherty said, "we shall live in a new world. It will be a world requiring fundamental readjustments in our thinking and in our way of national life. Indeed, we are already well into that world and are advancing further into it day by day. We need only to look about us. Intense social stresses, widespread confusion of purpose, and gross abuse of privilege are all too evident.

"National action has leaped far beyond national thinking. The simple fact is that this country is set up under a theory—the theory of individual rights and democratic procedures—and there is, after all, a limit to the extent to which that theory may be contravened. To go too far is to crack up. Flexible as history has shown the theory to be there is a limit as was demonstrated, for instance, in 1861.

"And since we have been rushed from our simple beginnings into the new, complex world, impelled first by technological development and now thrust headlong by the demands of war, we have got to accelerate our thinking to keep pace with our actions or we shall again stretch our theory beyond the breaking point.

We must readjust our thinking and our attitudes regarding national and community life to bring these again into workable accord with our theory of democratic government. Else there can be no lingering remnant of justification for the assumption that, as a nation of once-free people, we are still capable of intelligent action, or worthy of freedom.

"Professional men must undertake the task. Nobody else can do it. The problems are too complex. They involve the establishment of new interconnections—lines of communication and understanding—between fields of human activity that in the past have been held separate. The problems of sociology, economics and technology are no longer merely technical in nature. There are new elements to be recognized, new complications beyond those considered in the past. One is the imperative necessity now of recognizing more fully the interdependence of situations in these different fields.

"Every engineer in the country should be figuring out what he can do on his job to provide constructive employment. Seventy-five thousand trained minds turned upon the problem can bring results; and those minds can be reached and oriented through professional engineering societies."

## Installs Converting Plant

The Lincoln Paper Corporation, 138 Prince street, New York, has installed a complete converting plant with the most modern sheeting equipment. The firm announces that it can sheet from rolls in any size desired, book, bond, ledger, kraft, offset papers etc.

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Walworth Fig. 95 Bronze Globe Valves are ideally adapted for general service. They are rated at 150 pounds steam pressure. The lock-on, slip-off disc holder, originated by Walworth, saves you time and trouble. Union bonnets throughout the line are your assurance of extra strength in the body-to-bonnet connection. Angle type patterns (Fig. 96) are also manufactured. Both types are available in sizes from ¼" to 3".

For throttling services Walworth Bronze Globe Valve with removable seat and disc (Fig. 245P) is recommended. This valve is rated at 200 pounds steam pressure. The hard copper nickel discs and stainless steel seat rings are highly resistant to abrasion, erosion, wire drawing and galling. All parts are readily renewable. This valve may be secured in sizes from ¼" to 3". Angle type patterns (Fig. 246P) are also available.

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# The True Forestry Situation in Georgia

By G. E. Lockwood

What is the true forestry situation in Georgia? What are its most important problems and why? What is needed to protect, develop and perpetuate this valuable natural resource? That clear and practically complete answers to these vital questions are necessary for an intelligent consideration of our forestry conditions and problems is evident.

Of the many addresses delivered and articles published on this important subject, none has made clear the complete picture and its problems, says J. E. Lockwood in a recent issue of the *Savannah Morning* News. And, while various official state and federal forestry reports that were issued, have together supplied all needed information relating to same, yet none supplied complete figures and facts in such simple form as made clear the true situation and its problems.

That the present value of our forest resources is great, and their potential value much greater, is gradually becoming more generally realized. That their importance has been materially increased by our War Department program is evident. Therefore, the need of a clear and practically complete understanding of our forestry situation with its problems and needs, is now far greater than ever before. It is needed, so that owners of our timber lands and others interested in their protection and development, may be sufficiently informed to co-operate intelligently in the constructive planning and proper operations that are needed.

Therefore the purpose of this article, is to supply such summary of Georgia's Forestry Conditions and outlook, as will make clear to all concerned the true forestry situation with its problems and needs. It is based on Georgia's forestry operations during 1936 the latest year for which practically complete figures and facts are available. All figures given in the table following were obtained from official reports or other authoritative sources. Such as were reported in other units, were converted to "cubic feet," so that all figures given are on a comparable basis, thus indicating their relative volume and importance. The table also shows, what per cent of the total wood supply available from annual growth, was accounted for by the mortality drain, also by each commodity drain and by its total, and what per cent of the wood supply remained unused as a net increment to our total timber resources. These figures and the following explanatory comments, are considered sufficiently complete and accurate for use in constructive forestry planning, and for all other practical purposes.

SUMMARY OF 1936 FORESTRY OPERATIONS IN GEORGIA

| | Wood Supply and Drain Millions of Cu. Ft. | | Relative Volume Per Cent of Growth | |
|---|---|---|---|---|
| Annual Growth | | 900.8 | | 100.0 |
| Mortality Drain | 285.7 | | 31.7 | |
| Commodity Drain | | | | |
| Lumber | 185.2 | | 20.6 | |
| Fuelwood | 139.7 | | 15.5 | |
| Crossties | 19.1 | | 2.1 | |
| Pulpwood | 6.8 | | .8 | |
| All other | 45.4 | | 5.0 | |
| Commodity total | 396.2 | | 44.0 | |
| Total Drain | | 681.9 | | 75.7 |
| Net Increment | | 218.9 | | 24.3 |

The following comments supplement above figures:

### Annual Growth

The figures given include not only the annual increment laid down on trees five inches in diameter breast high, but also the annual recruitment from the smaller sized timber under five inches diameter. They therefore include all annual growth that is available to supply the combined mortality and commodity drain, on a sustained-yield basis. That the annual growth can be materially increased by preventing forest fires in Georgia, is generally realized.

### Mortality Drain

This is our largest and most serious drain. It is chiefly due to forest fires. That fire is the greatest danger to our forests, is now fully realized by all well informed persons. Dr. Herty realized this so keenly, that just before he passed on he urged the Georgia Forestry Association to 'Concentrate on securing county-wide forest fire protection as the greatest need of Georgia and the South." It is Georgia's greatest need. Therefore, the education of all owners of timber lands and all citizens and state officials interested in the welfare of Georgia, as well as our valuable forests, to the need and warrant for fire protection for our unprotected forests, should be actively carried on until complete forest fire protection is provided and made effective on all timber lands in Georgia.

### Lumber Drain

This is our largest commodity drain and the second greatest danger to our forests. The danger is principally due to the fact that out of approximately 1,600 sawmills in Georgia, not more than fifty have a capacity of 20,000 board-feet daily. As so nearly all of our sawmills are very small, each operates in a temporary location until all marketable timber in same is cut out, then moves on to another location and repeats. The operators of these small sawmills have but little permanent interest in any timber land or in its future. The responsibility for this destructive forestry practice lies with the owners of our timber lands, who sell all of their timber without any restrictions or limitations. The remedy is to educate all owners of timber lands and farmers with wood lots, to the greater possibilities of their timber crops, and show them how to get higher and more continuous cash returns per acre from their trees, by following a constructive forestry program.

### Fuelwood Drain

This is the second largest commodity drain. It is much larger than is generally realized. In 1936 it accounted for twenty times as much wood as our pulpwood consumption, then just beginning to increase. Even during 1940 it was approximately four times as great as the pulpwood drain from growing timber. The figures given do not include the additional large quantity of pine firewood used in South Georgia, which is called "lightwood," or the other wood cut from dead or cull trees not included in the annual growth figures given.

This is a relatively small but important use of our

wood. Of the total number of crossties produced from Georgia's growing timber, 35 per cent were pine, 47 per cent cypress and 15 per cent other hardwoods. Originally, heartwood pine crossties made from virgin pines were mostly used. Now sapwood second-growth pine crossties, treated with creosote are largely used. While under normal conditions this drain has become fairly constant, yet if our war defense program brings similar conditions to those that obtained during World War No. 1, we may see some increase in crosstie drain, for the new railroad mileage of main line and side tracks built and for increased crossties replacement. However, crossties drain will undoubtedly continue to be a relatively small portion of our total drain.

### Pulpwood Drain

Southern pulp and paper mills, especially the large ones, built during the last five years, are frequently referred to as the greatest danger to Southern Forests. Their pulpwood requirements are generally believed to be so large and their forestry practices so unsound that in consequence they may eventually exhaust our timber resources. Fortunately both beliefs are unfounded. Their pulpwood requirements during 1936 when the new and large mills were just starting operations, were very small, then less than 1 per cent. Even now, with nearly all of these mills operating, their pulpwood drain accounts for less than six per cent of the wood available from annual growth, while mortality loss by fire and commodity drain for lumber, fuelwood, etc., are each much larger. These mills soon realized and eliminated the danger to our forests and to their largest investments, from unwise pulpwood cutting. They were the first Southern forest industry to adopt generally sound and constructive forestry regulations, for timber cutting. Then they organized the Southern Pulpwood Conservation Association, to collectively promote constructive forestry education among all concerned. During 1940 the member mills of the association spent more than $70,000 to show other owners of timber lands and farmers with wood lots, how to get more money for their trees, and secure satisfactory regular returns from their tree crops. They advised, sell for pulpwood only the poor trees, salvage timber and portions of trees that cannot be sold for any other use. Then by growing the best trees to sizes and for uses that yield the highest prices, such as for poles, piles, saw-log, etc., thus secure the largest total cash returns per acre from your timber lands under a perpetual program. This constructive work is already bringing good results. Two of our large mills are now obtaining more than half of their pulpwood from salvage timber and selective cuttings. It is therefore evident that the investment of approximately $100,000,000 in these new Southern pulp and paper mills, due to our Dr. Herty's great vision and ability, is our best assurance of the conservation, full development and proper utilization of the forest resources of Georgia and the South.

### All Other Drain

This includes various relatively small but important uses of our wood. It covers poles, piles, fence-posts, paving blocks, and other uses that yield high prices and provide a desirable market for the best trees. It also includes timber removed in land clearing operations and timber used for domestic farm purposes.

### Net Increment

This is the unused portion of the annual growth, if any, that is not required for total drain, which remains in timber stands as a net increase in our total timber resources.

### 1940 Growth and Drain

The annual growth of timber in Georgia during 1940 has been estimated as approximately 950 million cubic feet with mortality estimated at 300 million, leaving available for all other drain 650 million cubic feet. As Georgia's pulpwood drain for 1940 was reported as approximately fifty million cubic feet, this leaves a balance of 600 million cubic feet available for all other commodity drain. That remaining wood supply would have been sufficient for a 75 per cent increase in lumber drain to include war defense requirements and about 35 per cent increase in all other uses. These estimates are considered as within the realm of reason. If so, then the wood supply that year available from annual growth, was probably sufficient for the combined mortality and commodity drain without any decrease in our total timber resources. These estimates are for the state of Georgia as a whole.

For the different sections of Georgia, somewhat different conditions have existed. In South Georgia during 1936 and 1937 the growth and drain were approximately equal, but during 1940 and 1941 lumber drain had largely increased, pulpwood drain then averaged about six per cent, and in consequence the total drain apparently exceeded the annual growth and caused some decrease in total timber resources of that section. That this condition cannot continue indefinitely is evident. That either more trees must be grown, less timber destroyed or damaged by fire, or the total commodity drain must be reduced if the timber resources of that section are to be protected. The most desirable course, is evidently to provide fire protection for all unprotected timber lands in that section and thus reduce mortality with a corresponding increase in wood supply for commodity drain. However, if any decrease in commodity drain becomes necessary, it should be made in whatever use or uses are of a temporary nature with but small capital investments involved, rather than in such permanent industry as pulp and paper mills, with their large investments and constructive forestry policy. In Central and North Georgia sections, an increase in industrial developments is justified. But even there the conditions and available, surplus wood supply should be carefully studied, so that a proper balance between annual growth and total drain will be assured, with a reasonable margin for safety.

### In Conclusion

This summary is provided to make clear the true Forestry situation in Georgia, with its problems, needs and possibilities. It shows that Forest Fires are our greatest danger and Forest Fire protection our greatest need, especially in South Georgia. Also that with complete Fire Protection for all of our timber lands, the mortality drain would be largely reduced, the annual growth materially increased, and an increased wood supply thus be made available for present and potential forest industries.

As Georgia's forest resources are among the largest in the South, and its annual timber growth the most rapid and largest of any state in our country, we should lead in securing and maintaining the additional industries, many of which are considering Southern locations. We need additional industries. Georgia should not let this great opportunity pass.

# Obituary

## Robert Clunie, Sr.

[FROM OUR REGULAR CORRESPONDENT]

RUMFORD, Me., December 13, 1941—Robert Clunie, Sr., 73, plant superintendent of the Oxford Paper Company and nationally known in the trade, died recently in Damariscotta Hospital after an illness of four months.

Born in Markinch, Fifeshire, Scotland, August 6, 1868, he came to this country in 1892, the son of Thomas and Margaret Clunie, first living in Wilbraham, Mass., where he received his early training in paper making.

In 1904, he went to Rumford where he was employed by the Oxford Paper Company. In 1908, he became mill superintendent, a position he held until his late illness. He contributed many machine improvements to fine paper making, most of which are in use throughout the world today.

Two sons, George H. Clunie, Rumford, and Robert Clunie, Jr., Newcastle; a daughter, Mrs. Ernest Edgecomb, Rumford, seven grandchildren and four great-grandchildren are living.

## Henry L. Goodman

[FROM OUR REGULAR CORRESPONDENT]

Henry L. Goodman, 67, paper merchant at 176 Federal street, Boston, died December 11 at his residence, 29 Hawthorne avenue, Auburndale, Mass., after an illness of a few weeks.

A native of England, he came to this country when a boy. He was associated with John Carter & Company, Inc., for a number of years, starting with that concern as a delivery boy. Later he went into business for himself, specializing in fancy papers and box coverings.

Mr. Goodman was well and very favorably known in the trade and a representative for a number of prominent concerns.

He was a member of St. John's Lodge, A. F. and A. M., Boston, the Woodlawn Golf Club, and a charter member of the Auburndale Club.

A wife, Mrs. Sarah Woodbury Goodman, and a son, Henry N. Goodman, are living.

Funeral services were held December 13 in Story Chapel, Mount Auburn Cemetery, Cambridge. Rev. Ralph H. Rogers, of the Auburndale Congregational Church, officiated.

The business which Mr. Goodman established will be continued by Robert A. Ford, who had been associated with him for a number of years.

## Edwin B. Greenyer

[FROM OUR REGULAR CORRESPONDENT]

READING, Mass., December 15, 1941—Edwin B. Greenyer, 42, purchasing agent and credit manager of the Sherman Paper Products Corporation, Newton, Mass., died recently of a heart attack at his residence, 15 Highland street.

He had been associated with the Sherman company for 12 years and prior to that had served with the Gillette Safety Razor Company and the Gulf Refining Company. During the last year he had been active in organizing the Reading Home Defense Corps.

He was born in Reading and lived there until his marriage, when he moved to Malden, Mass. Recently he returned to Reading and purchased a home there. He was an accomplished pianist.

He leaves his widow, Mrs. Leona Greenyer, and four children: Ethel, Marian, Edwin, Jr., and Mrs. Marjorie Marr, all of Reading. Services were held at the Edgerly and Bessom Funeral Home. Burial was in Laurel Hill Cemetery, Reading.

## Charles W. Thompson

[FROM OUR REGULAR CORRESPONDENT]

FULTON, N. Y., December 22, 1941—Charles W. Thompson, 62 years old, for many years superintendent of the Velney Paper Company, died this week after a brief illness. In 1923 he went to Skaneateles Falls where he served as superintendent of the Draycott Paper Mills but returned to this city in 1927 to become connected with the Walker Corp. He retired from business a few years ago and moved to Auburn. The principal survivors are his wife and daughter.

## Lieut. John B. Beveridge

Lieut. John Brookes Beveridge, 4th Canadian Reconnaissance Battalion, was killed on December 7 while on active service in England.

Lieut. Beveridge is a son of J. Brookes Beveridge, who is connected with the Paper and Industrial Appliances, Inc., New York, and formerly manager of the Drydon Paper Company and of the Lake Sulphite Pulp Company, until the latter concern went into liquidation.

Surviving are his parents, a sister and three brothers.

## Bertha K. Bartlett

Bertha K. Bartlett, wife of N. E. Bartlett, vice-president of the Pennsylvania Salt Manufacturing Company, died at her home Monday December 15, 1941, after a comparatively short illness. Funeral services were held Tuesday, December 16 at 3:30 P.M. at her late residence, 2125 Pine street, Philadelphia, Pa., with interment the following day at noon in Easton, Maryland.

## Shanghai Reports Pulp Shortage

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 24, 1941—Reports to the Department of Commerce state that stocks of wood pulp are extremely low in Shanghai and at all Chinese ports. Trade sources report that there is practically no bleached wood pulp in stock or in the mills and that stocks of unbleached pulp in the hands of dealers will not exceed 1,000 or 1,200 tons. The supply of unbleached pulp in the mills in Shanghai is understood to be almost exhausted. Local dealers and paper mills are greatly concerned over the likelihood that further supplies of wood pulp from the United States and Canada, as well as from accustomed European supplies, may be unobtainable as long as war prevails.

China received 684 tons of wood pulp from the United States and 140 tons from Canada during the first four months of 1941, all of which entered through Shanghai. Reexports from Shanghai during the period totaled 167 tons and imports into other Chinese ports during the four months aggregated 256 tons.

## Newton Paper Co. Gets Desist Order

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 24, 1941 — The Newton Paper Company, Holyoke, Mass., paper manufacturer. three New York distributors of "bogus" paper, a die cutters' trade association and its executive secretary, and seven operators of stay die cutting businesses, have been ordered by the Federal Trade Commission to cease and desist from entering into understandings, combinations or conspiracies to hinder or restrain competition in, or to monopolize in themselves, the sale and distribution of "bogus" paper.

The respondent New York distributors are: Samuel Fuchs, trading as Henry Fuchs & Son; Solomon J. Salwen, Sidney Salwen, Reuben Salwen and Maurice J. Salwen, trading as Joe Salwen Paper Company; and Salwen Paper Company. Other respondents are: Stay Die Cutters Association, Inc., and Sidney Haberman, executive secretary of the association; Art Metal Die Manufacturers, Die-Craft Cutting Company, Inc., R. & C. Mounting and Finishing Company, New York Leather Embossing Company, Harry Litky, Jennie Lansky, trading as Lansky Die Cutting Company, and Morris Silverberg, trading as F. & S. Die Cutting Company, all of New York.

In 1933, the Commission finds, the respondents entered into and thereafter carried out an understanding and combination to restrict and restrain competition and trade in the sale and distribution of bogus paper, either in its original or converted form. In pursuance of this agreement, the findings continue, the respondent die cutters organized the Stay Die Cutters Association, Inc., and the respondent die cutters refused to sell their products to customers of other members of the association, under penalties prescribed and assessed by the association. The respondent association and the respondent Haberman are found to have cooperated with the respondent die cutters by holding meetings of members, circulating and distributing prices, discounts and charges fixed by the die cutters, circulating lists of delinquent customers, and prescribing and assessing penalties for violation of the understandings and agreements. The Commission finds that the Newton Paper Company pursuant to this agreement restricted its sales and shipments of bogus paper to the three respondent distributors, thereby giving them sole control and monopoly of the sale and distribution of its product.

The respondents are ordered to cease and desist, pursuant to their understanding or agreement or in concert or cooperation, from fixing and establishing prices, terms, discounts and charges for bogus paper, allocating new and prospective customers for the product, refusing to sell to customers of other members of the association, restricting their purchases to the respondent manufacturer and distributors, furnishing the association or its representatives with lists of delinquent customers, refusing to sell to delinquent customers of other members of the association, and utilizing the association as a means of instrumentality in the carrying on of any of the acts and practices forbidden by the order.

The Commission further orders that the respondent association and Sidney Haberman cease and desist from holding meetings of the respondent die cutters to fix prices, terms and charges for their products; and from circulating or distributing prices, terms or charges established by the respondent die cutters, circulating and distributing lists of delinquent customers of the respondent die cutters, prescribing and assuming penalties for violations of the understanding and agreement, or otherwise cooperating with the respondent die cutters in the carrying out and enforcement of such understanding or agreement.

The respondent manufacture, distributors and their officers are also ordered to cease and desist from refusing to sell "bogus" paper to any die cutter not a member of the respondent association on the same terms or conditions as they sell to the members of the association, or otherwise cooperating with the respondent die cutters and association in the carrying out and enforcement of any such understanding and agreement, or forbidden practices.

## An Improved Core Plug

An improved core plug, designated as "Kwik-Tite" is being introduced to paper mills by Paper Mill Appliance Company, Menasha, Wisc. Illustrated here is a pair with the wrench used to tighten them on roll shafts. Tapered to fit the roll, this core plug operates on an eccentric. When tightened it cannot come loose and furnishes a uniform paper tension at all times. To insert into the roll there is no pounding to make it fit, and hence, no cracked cores or spoiled paper rolls. It simply slips into the roll, and is tightened with the wrench. Made to fit 3 inch cores, but it can be made specially for roll shafts from 1-3/16 inch diameter up to larger sizes. Safe to operate, it has no projecting screws that can pick up paper or become accident hazard to workers. It is perfectly smooth on the outside surface. Its use, the manufacturer states, will save down time, as it can be changed quickly and easily. "Kwik-Tite" core plugs are made of machined castings, and have been tried out in paper mills for the past two years before being offered to the industry.

## Regulating Generator Winds Paper

A small motor-generator regulator circuit is connected in a Wheatstone bridge circuit with exciter field of a variable-voltage generator to obtain extremely accurate control of the speed of a direct-current motor. The scheme was originally developed by Westinghouse some dozen years ago for accurate stopping of elevators at floor levels regardless of the number of passengers. It has since become a star in the field of machine tools, hoists, electric shovels, and others. Now it is used to insure even tension of paper as it is wound on a reel.

The regulating generator in the paper-winder drive does not hold motor speed constant but maintains constant current to the motor. By this means the paper being wound is held in constant tension regardless of roll diameter of speed, which is the objective. The motor speed varies from a high speed when the roll is small to progressively slow speeds as the diameter increases.

## Consistency Control Improved

A greater realization of the importance of controlled consistency of stock in paper making is becoming more and more apparent. It is a well-known fact that the consistency of beater stock has much to do with efficiency of beating, both as to time required in beaters and power consumed. If the stock is too thin in the beaters, not enough fibers are subjected to the refining action and beater capacity is reduced. If the stock is too heavy, the circulation is impaired.

With the important role which paper plays in the Defense Program, consideration must be given to every possible means tending toward the making of more and better paper at reduced costs wherever possible.

The Williams Apparatus Company has spent some twenty-five years in developing and improving more accurate and rapid practical methods for the determination of consistency. The latest and now most widely used method is by means of a New High Speed Ball Bearing Centrifuge of special construction adapting it particularly to the specific requirements of consistency determination of paper stock.

As noted above, any method in order to be of practical value must be rapid. A complete consistency test should not require over five minutes. It should be adapted to a wide range of stock from even white water to the heaviest beater, or bleach stock.

The idea of using a Centrifuge for the extraction of water from various materials is not new but the special adaptation of this principle including provision for reducing sample quickly to bone dry fiber condition, is the result of long and special research by this Company.

The Centrifuge is sturdily constructed with high speed ball bearing motor enclosed in water-proof housing. The revolving basket is provided with loose Fourdrinier wire basket lining which permits the ready removal of the moist extracted sample intact upon the wire screen from which it may be removed and quickly weighed. Results of over 1000 tests prove that from the weight of this moist extracted sample, its bone dry fiber content may be calculated to within an accuracy of plus or minus ½ of 1% with the extraction factor of the Centrifuge occasionally checked on various types of stock.

The extraction factor of the Centrifuge is quickly obtained as follows: After the sample has been mechanically extracted and weighed, it is returned to the Centrifuge. A special electric heater and dryer is now inserted and the same centrifugal force which extracted the water now forces super-heated air through the mat which quickly reduces it to the bone dry condition. On most stocks, this requires only three to four minutes. If there is any doubt as to its final bone dry condition, it may be returned to the Centrifuge for additional heating until constant weight is obtained.

This instrument has been particularly valuable, not only for consistency mill tests but also as a rapid and accurate means for the preparation of standard samples for freeness tests.

It is much more accurate and reliable than other methods such as squeezing the sample, and enables the operator to make up a sample of predetermined consistency rather than drying and weighing the pad after the freeness test is completed which gives the information at the wrong end of the picture.

A Mark Time switch is provided which eliminates the personal factor of the operator both in the mechanical extraction of water as well as in drying the sample.

An indication of the merit of this method for the determination of consistency lies in the fact that several hundred of these instruments are now in satisfactory use.

## Michigan Superintendents Meet

KALAMAZOO, Mich., December 22, 1941—The importance of technical articles to the papermaking industry was described here Thursday evening by Harry E. Weston, Chicago, editorial director of Fritz Publications.

Mr. Weston spoke on "Paper Making—its Fourth Estate," at the December meeting of the Michigan division, American Pulp and Paper Mill Superintendents Association, in the Park-American Hotel. He was introduced by Henry Neudorf, division chairman.

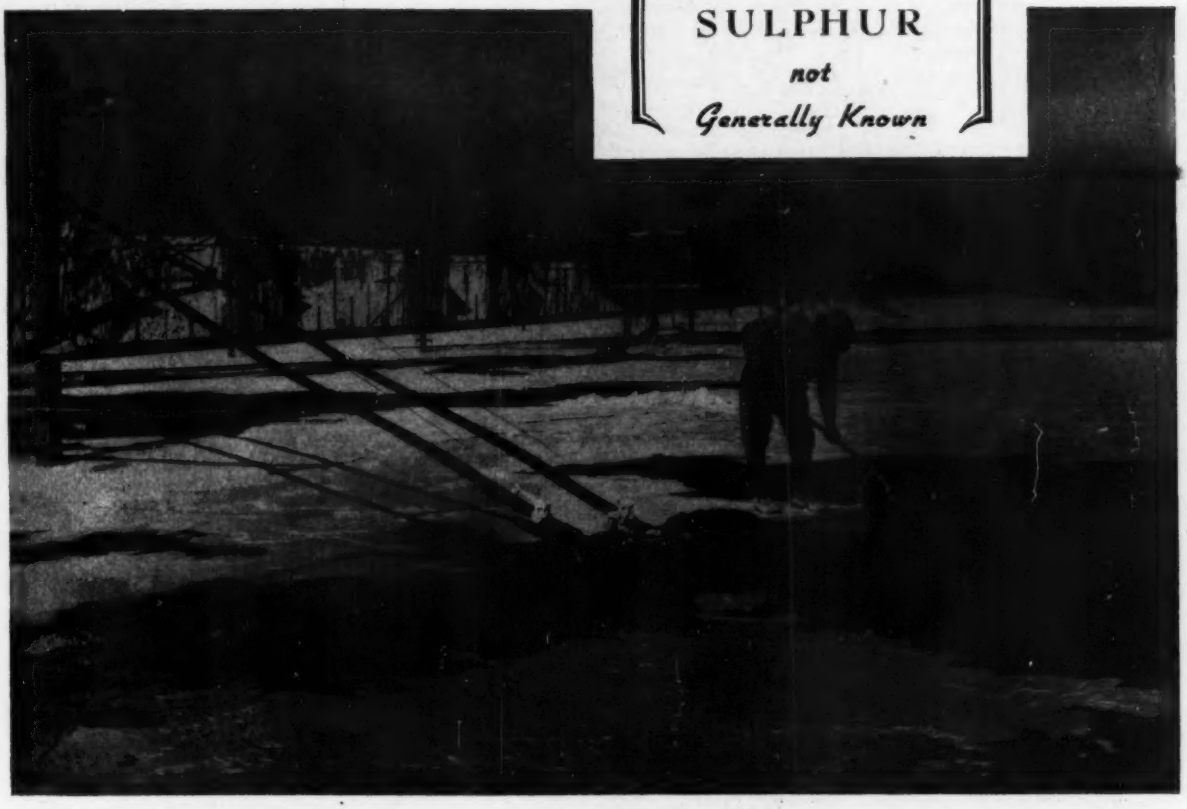
A motion picture produced by the General Electric Corporation and depicting uses of the General Electric recording photoelectric spectrophotometer, was presented by David B. Gearhart, G. E. Grand Rapids representative. The instrument, which is capable of breaking down color into its component parts, thus giving a graphic record of color, may have a future in the papermaking industry in color matching and other phases of manufacture, it was said.

Those present included the following: Ralph Atkins, J. F. Fielding and Charles Gardner, Lee Paper Company; W. H. Astle, R. L. Barton, Paul de Guery, M. F. Fogerty and A. E. Hays, Michigan Paper Company; Willard Barnhart, Kenneth Conrad, M. A. Grogel and W. R. Tobin, American Box Board Company; L. H. Breyfogle, Draper Brothers Company; W. F. Costello, Joseph Loughead and R. Short, Loughead Company; W. E. Crotty and O. E. Fischer, Bryant Paper Company; G. V. Cathey, B. F. Goodrich Company; F. L. Chappell, J. A. Heenan, A. L. Sherwood, Glen Sutton and Arnold Weller, Sutherland Paper Company; D. B. Gearheart, General Electric Company; J. G. Harrold, Dodge Manufacturing Company; Fred Hodgemier, Hawthorne Paper Company; K. T. Kimball, Improved Paper Machine Corporation; Frank Libby, L. H. LaLiberte, Al Perlick and George H. Rice, Kalamazoo Vegetable Parchment Company; J. W. Claren, National Starch Products Company; Art McPhillips, Simonds Worden White Company; Jake Parent, Noble & Wood Machine Company; Sergeant Don Rice; H. Neudorf and Joseph Waber, Rex Paper Company; Roman Suess; R. W. Shew, Otsego Falls Paper Company; C. F. Sisson, Mac Sim Bar Company; Homer Stafford, Retired; C. "Baldy" Smith, Huron Milling Company; W. S. Taylor, American Cyanamid Corporation; P. H. Tigwell, Beloit Iron Works; Joseph Widemeyer, Allied Paper Company and Harry E. Weston, Fritz Publications.

## Delaware TAPPI to Meet January 6

The regular January meeting of the Delaware Valley Section of TAPPI which was scheduled for the first Friday of the month, January 2, has been postponed to Tuesday, January 6. This was done as the first Friday falls on the day after New Year's day.

*Interesting Facts about* SULPHUR *not Generally Known*



# *Hot Pockets*

The hot molten Sulphur as it flows from the mine is pumped to storage vats and allowed to cool. There a series of double discharge lines with swivel joints permits the uniform distribution of the molten Sulphur in thin layers over the top of the vat—an area of nearly six acres. ★ Sulphur conducts heat but slowly and, if it were not properly distributed, pools or pockets of liquid Sulphur would be covered by a crust, formed as a consequence of temporary differences in cooling rate. Such pockets, enclosed in solid Sulphur, might still contain liquid Sulphur at the end of a year or more. As a safety measure, special care is used to prevent the formation of such pockets. ★ Nearly three million tons of Sulphur or one and two-third times the entire demand of American industry in 1940 are in stock at the mine.

**TEXAS GULF SULPHUR CO.**
75 E. 45th Street New York City
Mines: Newgulf and Long Point, Texas

12-TG-2

## Public Printer Wants Paper Data

A. E. Giegengack, public printer at Washington has sent the following letter to Frank Whitwam, manager, The Graphic Arts Association, 820 Association of Commerce Building, Grand Rapids, Mich., which is self-explanatory:

"I am writing to a number of the members of my Advisory Committee about a problem which is becoming increasingly difficult. That is the question of obtaining and having available when needed at the place of manufacture (either here in the Government Printing Office or at the plant of a commercial printer, publisher, or lithographer) a sufficient supply of suitable paper for the job at hand.

"I have taken the usual steps to obtain this result and also have resorted to any extraordinary means at my command. Now, however, with the declaration of war, the situation becomes more acute. It has been suggested to me that a number of printers throughout the country, particularly in the larger centers, may have paper stocks either on hand or on contract for which they do not have immediate or prospective use. This could be due to several reasons, among them a reduction in the volume of direct mail advertising, discontinuance of the use of house organs, office forms, etc. due to printers' customers being engaged solely or chiefly in the production of items needed for national defense, or in the changed policies of printers' customers due to other causes.

"Therefore, I am addressing this appeal to you and to other members of the committee, asking that you do the following: Give me the names of any printers, or have them write me direct, who have on hand or on order stocks of paper which would be immediately available for either the production of Federal printing in their plants, or transfer and assignment to the Government Printing Office for our use in Washington and elsewhere. It is desirable that the paper should be accurately described as to sheet size and other specifications. Unless they have already done so, such firms should also submit to me a filled-in questionnaire form such as you have circulated so that I may have necessary information indicated on these forms.

"Of course, we shall have to follow the usual Federal purchasing procedure, but if we knew that certain firms had paper stocks on hand of the right size and kind to produce a given job, this would be borne in mind when extending invitations to bid. If printers do have stocks of paper which the Government could take off their hands with convenience to them, such action should be an advantage to them and of substantial assistance to the Government at this critical time.

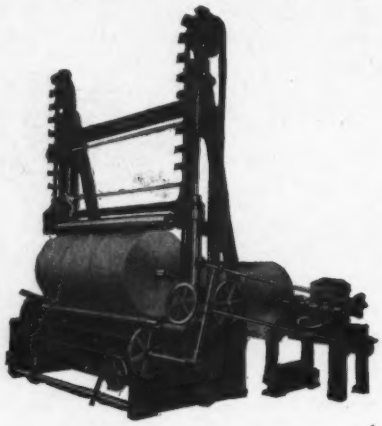
"While it is unlikely that small printers have stocks on hand or on contract that would be large enough to assist the Government Printing Office through their transfer, it is believed that many of the medium sized and larger printers may find themselves in that situation."

## Fox Paper Mill Donate Weekly Fund

Employes at the mill of W. H. Fox & Sons, Inc., Penn Yan, N. Y., manufacturer of straw board for corrugating, etc., have voted to donate a day's pay each week to the Federal Government for its war program, until further notice.

## New Camachine for Large Rolls

In a number of mills manufacturing Kraft board, there is a demand for rolls wound to large diameters, at times up to 72 inches. Along with this requirement there is often a call for rather narrow strip.



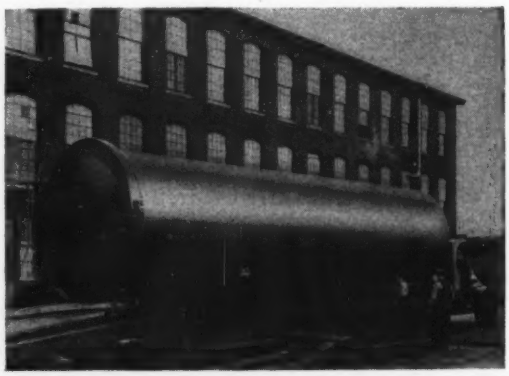
For Large Diameter Rolls

In designing the slitter and roll winder illustrated herewith, Camachine 10 Model 14-D, the engineers of the Cameron Machine Company, Brooklyn, N. Y., gave these needs close attention, which accounts for the fact that seven of these machines are already in operation handling 150 to 250 lb. board in calipers up to .065.

The score cut slitters on these winders can be spaced to widths from ½ inch up. Speed of operation can be anything up to 1,000 FPM on board or 1,500 FPM on paper.

## Installs Huge Vulcanizer

The vulcanizer represented in the accompanying illustration is being installed at the American Wringer Company plant at Woonsocket, R. I. to increase



American Wringer Installs Vulcanizer

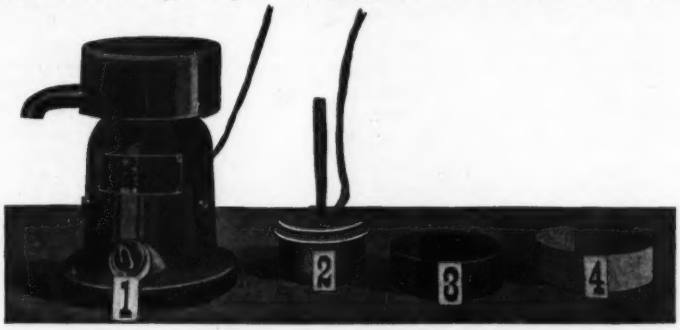
its capacity for the rubber covering and rubber lining of tanks, machine parts and products of large dimensions as a protection against acids, fumes and other harmful elements. This vulcanizer will take any object 33 feet long by 84 inches diameter or 64 inches square.

# "CONSISTENCY, THOU ART A JEWEL"

**Do you know the consistency of your paper stock and the importance of its proper control in paper making?**

**Properly controlled consistency means more efficient beater, Jordan and bleach stock operation and consequent saving of power, and uniform weight control. Best means of obtaining standard samples for freeness tests.**

**The NEW WILLIAMS HIGH SPEED CENTRIFUGE is the most rapid and accurate method ever devised for the determination of the consistency of any wet stock in the mill from white water to heavy beater stock.**




**A complete consistency test may be made in LESS THAN FIVE MINUTES.**

**Mechanical extraction or centrifuging with Mark Time switch control 1½ minutes.**

**Removal of moist extracted sample on loose Fourdrinier basket lining and weighing 1 minute.**

**Calculate bone dry fibre content from weight of moist extracted sample. Over 1000 tests prove this method accurate within plus or minus ½ of 1%.**

**For occasional checking of extraction factor of Centrifuge, return moist weighed sample to Centrifuge, insert special electric dryer and reduce to bone dry condition — 3 to 5 minutes required. Superheated air is forced thru fibre mat.**

## WILLIAMS APPARATUS CO., INC.

**Park Place** **Watertown, New York**


## New England TAPPI Discusses Plastics

The New England Section of the Technical Association of the Pulp and Paper Industry met on Friday evening, December 19th at the Roger Smith Hotel, Holyoke, Mass. Norman I. Bearse of the Champion International Company presided as chairman.

M. H. Bigelow of the Plaskon Company, Toledo, Ohio, was the principal speaker and gave a popular talk on plastics. Mr. Bigelow showed a number of molded products made from various plastic materials such as urea formaldehyde and cellulose acetate resins. He traced the history of the industry, pointing out that asphalt and amber were among the first plastics used. Ivory was formerly used for billiard balls. Its growing scarcity brought about the development of celluloid and later to get greater flame resistance materials like bakelite were used.

There are two general classifications of plastics, namely, thermoplastic materials and thermosetting plastics. The former can be made to change its shape under the influence of heat and pressure, the latter take a final form under these influences and are not later changeable. It was the speaker's opinion that the present trend is the most practical. This involves the building up of shapes by glueing thin veneers of wood with plastic substances and exposing the product to heat and pressure.

Peter Sinclair of the Sinclair Company, Holyoke, Mass., commented on the present situation regarding the availability and quality of wire cloth. The industry expects to be able to supply the paper industry with wires in 1942, but Mr. Sinclair pointed out the need of conservation and the necessity of giving greater care to the use of wires, making them last, in use, as long as possible, especially since the paper mills are running their machines faster and longer.

Claude F. Baxter of the Merrimac Paper Company, recently of England, gave an interesting account of the London air raids and means of minimizing and salvaging their effects. Black linen cloth has been found most suitable for blackouts but its scarcity is requiring a greater use of black paper. Wrapping paper is not being used. Newspapers now run about six pages and envelopes are used over and over again. There is relatively little advertising being done. Boy scout troops are doing a good job in collecting waste paper, some going so far as to sort it and to bale it for use in the mills.

Those present included: A. E. Bachmann, P. S. Barnhart, Claude F. Baxter, N. I. Bearse, M. H. Bigelow, P. S. Bolton, R. F. Blount, Arthur M. Brooks, Jack Carey, John F. Carroll, Mr. and Mrs. L. W. Crouse, C. C. Decker, R. H. Doughty, Howard Ferguson, W. L. Foote, H. Hestness, P. G. Hubbard, Carroll A. Homan, Werner Kaufman, J. P. Kennedy, Helen U. Kiely, A. D. King, Paul Knight, John T. Leecock, Herbert S. Leonard, E. M. Loveland, R. G. Macdonald, G. E. Mangsen, Bob Mannheim, John C. Marrone, C. S. Maxwell, John M. McGarry, H. L. Mellen, C. C. Mockridge, E. O. Nash, Paul R. Nelson, W. A. Nivling, J. P. Phelps, C. J. Prescott, Jr., R. J. Proctor, E. O. Reed, Robert T. Sammet, Fred W. Schneider, Robert J. Seidl, Peter Sinclair, L. V. Smith, T. L. Stirling, F. A. Strovink, George Sullivan, R. M. Swaney, B. E. Teale, Joseph J. Thomas, and William R. Willets.

## New Roll Grab

A new, completely motorized roll grab has been developed by the Cleveland Tramrail Division of the Cleveland Crane and Engineering Company, Wickliffe, Ohio, for use with its overhead materials handling systems. The grab will handle rolls from 16 inch minimum to 60 inch maximum diameter in lengths up to 72 inches and weights up to 5,000 pounds.

All motions of the grab are motorized and can be controlled from the crane operator's cab. Three motors are provided. One motor spreads and retracts the grab arms. Another squeezes the roll grippers after they have been brought close to the roll, and

COMPLETELY MOTORIZED ROLL GRAB

thus securely locks the roll in position and prevents any possibility of slipping away and falling in transit. The third motor operates the turn-over mechanism which makes it possible to pick up a roll in any position and place it in any other position. Thus a roll piled vertically can be picked up and placed in a horizontal position.

When a roll in the vertical position is to be picked up and delivered in a horizontal position, or vice versa, the turn-over mechanism can be operated while the crane is in motion, thus saving time that ordinarily would be consumed for this operation.

The grab is especially suitable for the handling of all grades and thicknesses of paper, from light crepe and tissue paper, sound-deadening felt to kraft and hard box board. The grab, or variations of it, is suitable for handling bales, barrels, boxes, etc.

## Kraft Committee Releases Report

The Kraft Paper Manufacturers' Subcommittee of the Pulp, Paper and Paperboard Divisional Committee, 122 East 42nd street, New York, has just released the report it made last fall to Norbert A. McKenna, Chief of the Pulp and Paper Branch of the Office of Production Management.

The report consists of an important survey and analysis of kraft wrapping, bag and sack paper production facilities. It will be published in a forthcoming issue of the PAPER TRADE JOURNAL.

## Philadelphia Elect Officers

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 23, 1941—On Tuesday last the annual meeting of the Philadelphia Paper and Cordage Association, Inc., in conjunction with the election of officers for 1942 and the Christmas Party for sixty underprivileged children from the Settlement House of the Salvation Army, was held in the beautiful Emerald Room of Hotel Adelphia. The newly elected officers were: Harry J. Smith, Thos. W. Price Company, president; Everett Hoffman, J. E. Fricke Company, vice-president; N. G. Herdelin, Terminal Paper Company, treasurer, and R. H. Gifford, H. M. Gifford Manufacturing Company, secretary. Directors for 1942 are: George K. Hooper, Hooper Paper and Twine Company, Inc.; Joseph H. Miller, vice-president, Garrett-Buchanan Company, Harry S. Platt, Denny Tag Company, E. L. Richards, Buffalo Envelope Company, John J. Shinners, Jr., Acme Specialty Sales Company and Arthur B. Sherrill, American Woodboard Paper Company.

Peace on Earth—Good Will Toward Men—was the serious theme of the Association's annual Christmas party for the little wards of the Salvation Army.

W. B. Killhour, Jr., president of Quaker City Paper Company, led in the singing of Christmas carols, and never seemed to tire of the many request numbers.

Jack Shinners, immediate past president, presided, and gave a very inspiring talk on the necessity of continuing the splendid cooperation among the members and urged them to even greater efforts, particularly to the least fortunate of our country. Dr. Croswell McBee, pastor of Old St. Davids, Radnor, Pa., delivered the invocation. Leonard Fitzgerald, the perennial Santa Claus of the Association, kept the faces of the children and the 125 guests beaming and it was indeed a heart-warming sight to witness the result of the untiring work of the members of the Ladies Auxiliary of the Association comprising Mrs. E. K. Lay, chairman, and her co-workers Mrs. George K. Hooper, Mrs. E. L. Richards, Mrs. Lee Johnson, Mrs. Harry Platt, Mrs. Carroll T. Gardiner, Mrs. Gertrude Gallen, Mrs. J. R. Howarth, Mrs. Howard Bancroft, Mrs. Frank Kurz, Mrs. Raymond Mathias, Mrs. David L. Ward and Miss Elsie Hewitt.

## Simplified Practice and Defense

To assist in the organization and development of the Government's program for conserving essential materials and labor during the present emergency, Edwin W. Ely, chief of the Division of Simplified Practice, has been transferred to the newly organized conservation division of the Office of Production Management.

Under the procedure as now worked out, interested groups in industry may, as in the past, initiate simplification projects. However, these may now be originated also by the Government. Recommendations will be worked out in general conferences in which industry, OPM, and other participating Government agencies will be represented. The Bureau is developing methods of procedure to expedite the completion of projects, while the Bureau of Foreign and Domestic Commerce is acting as a liaison agency between Government and industry.

## Waste Paper Changes

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 24, 1941—Several important changes in Schedule No. 30 dealing with waste paper prices were announced by Leon Henderson, Administrator, Office of Price Administration. One increase and one decrease in the maximum prices for two grades of waste paper, abolition of one grade, addition of four new grades and several changes in language are included in the new amendment.

The maximum price for "No. 1 mixed paper" is raised by one dollar to $14 a ton. The new amendment also abolishes the separate grade for "super-mixed paper" and the definition of "No. 1 mixed paper" is revised to cover types formerly classed as super-mixed. The new definition includes among other items, dry goods waste, department store waste, printers' waste, container manila, print manila, country packing and so forth, in addition to the "clean, dry waste paper" previously defined as "No. 1 mixed paper".

Second, the new amendment establishes maximum prices for four additional grades of waste paper not previously covered. The new grades and their price ceilings per ton are:

Manila tabulating cards of plain manila color, free from groundwood, $45.50.

Colored manila tabulating cards, free from groundwood, $30.00.

Groundwood manila tabulating cards of plain manila color, $27.00.

Groundwood manila tabulating cards, colored, $20.00.

Third, the maximum price for the "new 100% kraft corrugated cuttings" grade has been reduced from $49.00 to $45.00.

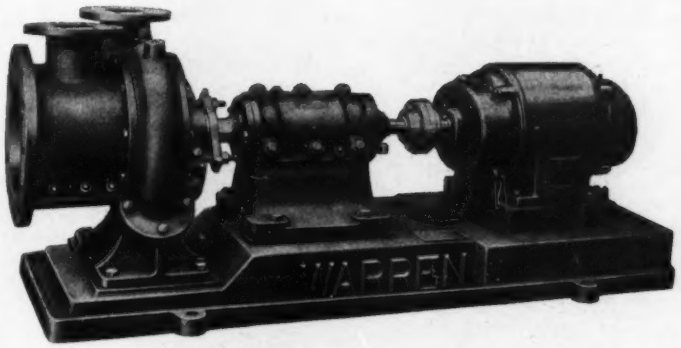
Fourth, the amendment changes the definition of "new corrugated cuttings" by eliminating kraft cuttings. The new definition limits this grade to jute corrugated cuttings. Definitions of several other grades of waste paper have been clarified.

Fifth, the amendment permitting a maximum additional charge by jobbers or producers of $1.00 a ton for loading on freight cars has been revised to make it clear that only the actual cost per ton of transporting waste paper from the seller's door and loading it on freight cars or barges may be added to the maximum prices established by the schedule and that in no case may this extra charge exceed $1.00 a ton. A provision permitting jobbers or producers to charge the actual cost of transporting waste paper for export to the ship on which it is to be loaded and baling it for maritime handling is also added. The maximum charge allowed is $3.00 a ton.

Sixth, in no case may any jobber or producer charge for the costs of transporting and loading waste paper on freight cars or barges, or for transportation to ships for export, unless he has kept the records required by Section 1347.4 of the Schedule and filed the affirmation of compliance required of him by Sec. 1347.5. A jobber is also prohibited from charging a jobber's allowance unless he has met these two requirements.

Seventh, the amendment limits allowance for tare in all instances to not more than 2% of the gross weight per bale of waste paper.


**The Pump the Superintendent *Forgot*..**




**WARREN MACHINE CHEST PUMP**

About three years ago one of our larger New England paper mills was experiencing considerable difficulty with a plunger pump on Machine Chest service. This pump was noisy, dirty, with no provision to regulate capacity, and maintenance cost ran high. A Warren Machine Chest Pump was purchased at a lower cost than that of a plunger pump of much smaller capacity. It took less floor space, the flow was smooth without pulsation, and it could be easily throttled. Not only that but the stock came through exceptionally clean and the pump operated very quietly. In fact, when a Warren representative called at this mill recently and inquired about the Machine Chest pump the Superintendent admitted he had practically forgotten it was there, due to trouble-free performance and low maintenance cost.

CHECK WITH WARREN ON MACHINE OR JORDAN CHEST SERVICE PUMPS.

**WARREN PUMPS**

Warren Steam Pump Company, Inc., Warren, Massachusetts

# CONSTRUCTION NEWS

**Appleton, Wis.**—The Fox River Paper Corporation, manufacturer of bond, ledger and other writing paper stocks, has approved plans for one-story addition to mill on Oneida street, to be used for storage and distribution. No estimate of cost is announced. General erection contract has been awarded to the Koepke Construction Company, Appleton, and work is scheduled to be placed under way at once.

**Baldwinsville, N. Y.**—The National Cellulose Corporation, Thompson road, Syracuse, N. Y., manufacturer of tissue paper products, plans early rebuilding of paper mill at Baldwinsville, recently damaged by fire, caused by an explosion, with loss reported at close to $35,000, including buildings and equipment.

**Seattle, Wash.**—The Bemis Brother Bag Company, 65 Atlantic avenue, manufacturer of paper bags and containers, has awarded general contract to the Austin Company, Dexter-Horton Building, Seattle, for alterations and improvements in plant at location noted, including roofing and other work. No estimate of cost announced. It is proposed to begin program at once. Richard Ellis, Dexter-Horton Building, is engineer.

**Kaukauna, Wis.**—The Sangamon Paper Mills, Inc., will take bids early in 1942 for proposed new addition to mill, recently noted in these columns, and expects to begin erection in the spring. It will be two-story, instead of one-story, as previously reported, about 48 x 60 feet, and will be used for expansion in production division. Cost estimated over $40,000, including equipment.

**Phoenix, N. Y.**—The Oswego River Tissues, Inc., recently organized, is said to be arranging to take over local mill property for operation for the manufacture of a line of tissue and crepe paper stocks. It is proposed to begin operations early in 1942. New company is represented by Estabrook, Estabrook & Harding, Herald Building, Syracuse, N. Y., attorneys. It is capitalized at $10,000.

**Grand Rapids, Mich.**—The Tanglefoot Company, 314 Straight avenue, S. W., manufacturer of fly-paper, gummed paper tape and kindred paper specialties, has work under way on expansion and improvements in mill, with installation of additional equipment for increased capacity. Machinery and facilities will be provided for about 100 additional workers in different departments. Entire program is scheduled for completion early next year and will represent a total investment of about $100,000.

**Memphis, Tenn.**—Fire recently damaged a portion of plant of the Tennessee Paper Company, 50 East Virginia street, commercial paper products. Loss is reported close to $15,000, including building, equipment and stock. The damage will be replaced.

**Lufkin, Tex.**—The Southland Paper Mills, Inc., Lufkin, manufacturer of newsprint, has secured a priority rating for construction materials, etc., required for the erection of proposed additions to mill, recently referred to in these columns, assuring immediate construction as soon as all mill details are perfected. Several one and multi-story buildings will be erected, with installation of a new chemical pulp unit, paper-making machine and auxiliary machinery and. equipment. Plant capacity is to be increased from 50,000 to 100,000 tons per annum. George A. Hardy, 305 Broadway, New York., is consulting engineer.

**Rothschild, Wis.**—The Marathon Paper Mills Company, manufacturer of wrapping, bond and other paper stocks, box board specialties, etc., has completed plans for new addition to mill. It will be one-story, designed for storage and distributing service. No estimate of cost has been announced. Approval has been secured from State for erection and work is scheduled to be placed under way at early date.

**St. Paul, Minn.** — The Kaplan Paper Box Company, 126-34 South Wabasha street, manufacturer of folding paper boxes, etc., has filed plans for alterations and improvements in plant at location noted. Contract for work has been let to Benjamin Feldstein, 945 Fairmount avenue, St. Paul, and will be carried out at once. No estimate of cost announced.

**St. Paul, Minn.**—The Tinsel Products Company, manufacturer of paper wrappings and other paper specialties, plans replacement of portion of converting plant, occupying the third floor of the Finch VanSlyck-McConville Building, Fifth and Wacouta streets, recently damaged by fire, with loss reported at close to $25,000, including machinery and stock.

**Lockland, Ohio**—The Fox Paper Company, 233 Lock street, manufacturer of kraft paper products, paper board and kindred specialties, is arranging for early completion of new one-story addition to mill, recently referred to in these columns, and will place in service immediately. It will be used for storage and distribution. It is reported to cost close to $20,000, with equipment. Joseph Messingschlager, Carthage avenue, Norwood, Ohio, has the general erection contract.

**Kenora, Ont.**—The Kenora Paper Mills, Ltd., Builders' Exchange Building, Minneapolis, Minn., manufacturer of newsprint, has plans under way for alterations and improvements in mill, including remodeling of portion of present plant. Cost is reported close to $50,000, including equipment. Contract for work is scheduled to be awarded soon.

**Niagara Falls, N. Y.**—The Niagara Wall Paper Company, Inc., Third street, manufacturer of wall paper stocks, has begun the production of a special black paper to be used for black-out service, following several weeks of research and experiments. The paper is designed for pasting on windows, as required, eliminating the necessity for using black paint. Several presses at the mill will be given over to this new line of output, with initial daily production to approximate 50,000 small rolls, or about one carload.

**Rochester, Mich.**—In connection with acquisition of Rochester Paper Company, manufacturer of blotting and other paper stocks, by new interests, recently noted in these columns, the control has now passed to Paul H. Travis, 8925 East Jefferson ave-

nue, Detroit, Mich., identified with the paper industry for more than 15 years, and who will assume active management at the plant. The mill will continue under the same name, with no change in operations at present time.

**New York, N. Y.**—The Ashland Corrugated Paper Products, Inc., recently organized with capital of 100 shares of stock, no par value, plans operation of a local plant for the manufacture of corrugated boxes and containers. New company is represented by Morris N. Freifeld, 67 West Forty-fourth street, New York, attorney.

**Phillipsdale, R. I.**—Bird & Son, Inc., East Walpole, Mass., manufacturer of roofing and building papers, insulating paper, wall board, etc., has secured permit for proposed addition to branch mill on Dexter road, Phillipsdale, previously referred to in these columns, and work on superstructure is being placed under way. It will be one-story, about 150 x 360 feet, equipped for expansion in dryer department and other production divisions, with portion of space for storage and distribution. Completion is scheduled early in 1942. Cost is reported about $100,000, with equipment. Vappi & Co., Inc., 240 Sidney street, Cambridge, Mass., has the general erection contract. Ganteaume & McMullen, 99 Chauncy street, Boston, Mass., are consulting engineers.

**Toronto, Ont.**—Fire recently damaged part of the plant of Hinde & Dauch Paper Company of Canada, Ltd., 43 Hanna avenue, manufacturer of corrugated paper and corrugated paper boxes and containers. An official estimate of loss has not been announced. The damage will be replaced.

### New Companies, Etc.

**New York, N. Y.**—Universal Board Processing Company, Inc., has been organized with capital of 100 shares of preferred stock, and 100 shares of common stock, no par value, to operate a mill in this vicinity for paper and paper board coating and finishing. New company is represented by Herman Glasser, 276 Fifth avenue, New York, attorney.

**New York, N. Y.**—The Burton Paper Products Corporation has been chartered with capital of 100 shares of stock, no par value, to deal in paper goods of various kinds. New company is represented by J. Frederic Rosenfeld, 7 Day street, New York, attorney.

**Montville, Conn.**—The Red Mill Paper Board Company, manufacturer of paper board products, chip board, etc., successor to the Montville Paper Corporation, has arranged for change in company name to the Cynancon Paper Company.

**New York, N. Y.**—The E. & W. Paper Trading Corporation has been incorporated with capital of 100 shares of stock, no par value, to deal in paper goods of various kinds. New company is represented by Horenstein, Walsh & Harkins, 11 West Forty-second street, New York, attorneys.

## Michigan Carton Distributes Bonus

The Michigan Carton Company, Battle Creek, Mich., has distributed a Christmas bonus to about 700 employes at the mill, totaling about $22,000. This represents about one week's pay for every worker on the payroll prior to June 1, 1941. This is the sixth annual bonus paid by the company at this season of the year.

PANACEA
by Prescription

**The patented "Floating Blade Principle" of the Lodding Doctor has proved to be a "cure-all" for safely cleaning any paper machine roll that requires doctoring, however the application of this panacea is "prescription-engineered" for each position on every machine. Hundreds of permanent cures prove that "floating" saves power and saves the roll surface from hazards of scoring. . . . May we submit recommendations as to the correct types of Lodding Floating Doctors for various positions on your machines? Write either the Lodding Engineering Corp., Worcester, Massachusetts, or the W. E. Greene Corp., Woolworth Building, New York.**

LODDING
FOR EVERY Doctors POSITION

# FINANCIAL NEWS

### New York Stock Exchange

High, Low and Last for Week Ending December 23, 1941

| | High | Low | Last |
|---|---|---|---|
| A. P. W. | 1¼ | ⅞ | 1 |
| Armstrong Cork Co. | 23¾ | 22⅛ | 22½ |
| Celotex Corp. | 6⅜ | 5⅞ | 6⅛ |
| Celotex Corp., pf. | 66 | 65 | 66 |
| Certain-Teed Products Corp. | 1⅞ | 1¾ | 1¾ |
| Certain-Teed Products Corp., pf. | 24¼ | 23⅛ | 23¼ |
| Champion Paper & Fibre Co. | 16 | 15 | 15¾ |
| Champion Paper & Fibre Co., pf. | 99 | 97 | 97 |
| Congoleum-Nairn Co. | 14¼ | 13½ | 14 |
| Container Corp. of America | 12 | 11⅝ | 11⅞ |
| Continental-Diamond Fibre Co. | 7⅜ | 7⅛ | 7¼ |
| Crown-Zellerbach Co. | 11⅛ | 10⅝ | 10⅝ |
| Crown-Zellerbach Co., pf. | 84 | 83½ | 84 |
| Flintkote Co. | 9 | 8⅝ | 9 |
| Robert Gair | 2¼ | 2⅛ | 2⅛ |
| Robert Gair, pf. | 10 | 9¾ | 10 |
| International Paper Co. | 13⅞ | 13 | 13¼ |
| International Paper Co., pf. | 56 | 54 | 55¾ |
| Johns-Manville Corp. | 54 | 50½ | 51¼ |
| Johns-Manville Corp., pf. | 123 | 122½ | 122½ |
| Kimberly Clark Corp. | 26½ | 25 | 26 |
| MacAndrews & Forbes | 20¼ | 19⅛ | 19⅜ |
| MacAndrews & Forbes, pf. | .... | .... | .... |
| Masonite Corp. | 26⅜ | 25¾ | 26 |
| Mead Corp. | 6⅜ | 5½ | 6 |
| Mead Corp., pf. | 72½ | 72½ | 72½ |
| Paraffine Companies, Inc. | 21 | 20 | 21 |
| Paraffine Companies, Inc., pf. | 100 | 100 | 100 |
| Rayonier, Inc. | 9⅜ | 9 | 9⅜ |
| Rayonier, Inc., pf. | 24½ | 24 | 24 |
| Ruberoid Co. | 15½ | 15 | 15 |
| Scott Paper Co. | 34 | 32½ | 33¼ |
| Scott Paper Co., pf. | 107 | 107 | 107 |
| Sutherland Paper Co. | 17⅝ | 16¾ | 17¼ |
| Union Bag & Paper Corp. | 8 | 7½ | 7¾ |
| United Paperboard Co. | 3¼ | 3 | 3 |
| U. S. Gypsum Co. | 40¾ | 37½ | 38¾ |
| U. S. Gypsum Co., pf. | 175½ | 175½ | 175½ |
| West Virginia Pulp & Paper Co. | 16½ | 15¾ | 15¾ |

### New York Curb Exchange

High, Low and Last for Week Ending December 23, 1941

| | High | Low | Last |
|---|---|---|---|
| American Box Board Co. | 3¾ | 3½ | 3½ |
| Brown Co., pf. | .... | .... | .... |
| Great Northern Paper Co. | 32 | 30½ | 32 |
| Hummel-Ross Fibre Corp. | 4¼ | 4¼ | 4¼ |
| National Container Corp. | 9⅛ | 9 | 9 |
| St. Regis Paper Co. | 1⅜ | 1⅛ | 1⅛ |
| St. Regis Paper Co., pf. | 108½ | 106 | 108½ |
| Taggart Corp. | 2⅛ | 1¾ | 1¾ |

## Judgment Reserved in Abitibi Appeal

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 22, 1941—As reported in the PAPER TRADE JOURNAL last week, Mr. Justice Middleton granted the application of the Montreal Trust Company, Canadian trustees, for an order to sell the assets and undertaking of Abitibi Power and Paper Company, Ltd., without reserve bid. In giving his judgment his lordship stated that the order could go as sought and that "terms might be spoken to". Application was made on Saturday last for an order implementing the decision and setting a date for the sale. The order was granted, fixing the date as Feb. 18, 1942, but when the parties concerned spoke to the terms of the original order that the properties be sold without a reserve bid, his lordship allowed a proviso, to which there was no objection raised, that there be a reserve bid. The reserve bid would be fixed by the master of the Ontario supreme court, but not made public.

However, that was only one phase of the great legal battle for control of the Abitibi. Counsel argued all day Wednesday, Dec. 17, at Osgoode Hall, before Mr. Justice Roach, on a motion made on behalf of R. S. McPherson, liquidator of Abitibi Power and Paper Co., for leave to appeal against the judgment of Mr. Justice Middleton granting the order to sell the assets without reserve bid on the date set.

At the conclusion of Wednesday's argument Mr. Justice Roach reserved judgment.

Grounds advanced for the motion for leave to appeal the judgment of Mr. Justice Middleton were that it was a matter of great public importance and that there was some doubt as to the correctness of the judgment, which declared that the Moratorium Act passed by the Ontario legislature was ultra vires so far as it interfered with the court in the sale of the assets under the Dominion bankruptcy law. This act, it was stated, prohibited court proceedings for the sale of Abitibi assets until Dec. 31, 1942.

## Robert Gair Votes Dividend

At a meeting of the board of directors of the Robert Gair Company, Inc., held on December 15, a quarterly dividend of 30 cents per share in respect to the fourth quarter of the year 1941, was declared upon the preferred stock of the par value of $20 per share of the company, payable December 30, 1941 to stockholders of record at the close of business December 26, 1941 without the closing of the transfer books.

At the same meeting of the board of directors a dividend of 25 cents a share was declared upon the Common stock of the Company, payable December 30, 1941, to stockholders of record at the close of business December 26, 1941 without the closing of the transfer books.

## Scott Paper Co. Sales Up

Net sales of the Scott Paper Company for the first 11 months of this year amounted to $22,995,483, an increase of 29.4% over same period of 1940.

Production in first 11 months has been the greatest in history and represents increased efficiency of equipment and personnel without additional production facilities.

The company states that while the earnings cannot under present conditions be expected to keep pace with the increase in net sales, the management feels that current trend of earnings is satisfactory.

## To Merge with Allied Chemical

National Aniline and Chemical Company, Inc., a subsidiary of Allied Chemical and Dye Corporation, is being merged with the parent company and its business will be conducted as the National Aniline Division of Allied Chemical and Dye Corporation. B. A. Ludwig, president of National Aniline and Chemical Company, Inc., has been appointed vice president of Allied Chemical and Dye Corporation.

## Folding Box Shipments Rise

Shipments of folding boxes into the Metropolitan New York area by members of the Folding Paper Box Manufacturers Association, Inc. for November totaled $1,148,611, compared with $1,342,649 in October and $766,538 in November, 1940.

## Heads Foresters

**Henry Schmitz, chief of the Division of Forestry, University of Minnesota, St. Paul, has been elected president of the Society of American Foresters. He has been editor-in-chief of the *Journal of Forestry*, the monthly technical magazine published by the professional forestry organization, since 1937.**

Dr. Schmitz will take office January 1 and will serve for the two-year term 1942-1943. He will succeed Dr. Clarence F. Korstian.

The election, held December 13 by a letter ballot under the system of proportional representation, resulted in the selection of Shirley W. Allen as vice-president. Professor Allen is on the faculty of the School of Forestry and Conservation, University of Michigan, at Ann Arbor. Formerly a forest officer in the U. S. Forest Service and forester of the American Forestry Association, Professor Allen is well known as a conservation writer.

The president and vice-president together with nine other members constitute the Council, which is the governing body of the Society. Five former Council members were reelected for two-year terms: I. F. Eldredge, in charge of the forest surveys of the South, U. S. Forest Service, New Orleans, La. Harry T. Gisbourne, Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Mont. Ralph C. Hawley, School of Forestry, Yale University, New Haven, Conn. William G. Howard, Division of Lands and Forests, New York Conservation Department, Albany, N. Y. Col. Allen S. Peck, regional forester, U. S. Forest Service, Denver, Col.

New Council members, elected for two-year terms are: Edward C. Behre, director of the Northeastern Forest Experiment Station, New Haven, Conn. Frederick S. Baker, professor of silviculture, Department of Forestry, University of California, Berkeley, Cal. F. P. Keen, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Portland, Ore. H. A. Smith, Department of Forestry, Tennessee Valley Authority, Guntersville, Ala.

***Ox and Sled Days***

**Before the caterpillar tractor it was slow going in the snowy woods. Before scientific felt designing it was slow going on the paper machine presses.**

**Your production can be increased with the aid of properly designed felts made by *Draper Brothers Co.***

*Draper Felts Favor Efficiency*

**DRAPER BROTHERS COMPANY**

*Woolen Manufacturers Since 1856* CANTON, MASS.

OUR REPRESENTATIVES *to serve you*

L. H. BREYFOGLE, Kalamazoo, Mich.
C. K. BEECHER, Delaware, Ohio
W. L. CAMPBELL, Savannah, Ga.
O. J. LELOFF, Vancouver, Wash.
RALPH E. BRIGGS, Canton, Mass.

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

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## COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

## FREE ENTERPRISE

The American system of free enterprise has accomplished for this country what has never been achieved in any other country. It has developed in the United States of America the largest, the most varied and the most profitable industrial system in the world. It has contributed directly to steadily advance the standard of living, provided higher wages and giving a more liberal share of prosperity to its workers than has any other system at any time in any other country in the world. The American system of free enterprise is not without flaw but it is so far superior to any other system in practical results that it seems highly desirable to preserve its inherent merits.

The one real chance of preserving the private enterprise system is for businessmen to act daringly and in concert in meeting the problems of the post-war period, Dr. Edwin G. Nourse, director of the Institute of Economics of the Brookings Institution, said in an address at the annual meeting of the Congress of American Industry, at the Waldorf-Astoria hotel, New York, on December 5. Dr. Nourse discussed the "Nature and future of private enterprise" and said that industry's leaders must discard the tendency toward defeatism in meeting this challenge.

In referring to the "unfolding nature of private enterprise", the speaker said that "The early budding stage of modern business enterprise was characterized by simple types of agriculture, handicraft and small trade." (1) At this first stage the unit of operation was the individual or at most the family group. There could be no question as to the unity of economic interests for the individual and little within the family group. (2) The individual or family would normally enlarge its productivity to the utmost possible point of both industry and skill if it could benefit from all such increases. It did not require any plan or organization to produce sound results. It simply kept its 'eye peeled for the main chance'. (3) The increase in opportunity which came as men secured economic freedom was matched by an increase in responsibility. When the individual or family gained freedom from control, it also gave up its claim on anyone else to furnish it food and shelter even of the meanest kind. It undertook to 'hustle for itself'. The close linking of consumer responsibility with producer effort was a distinctive feature of individual enterprise. (4) The individual enterpriser saved largely according to the needs of his own employment."

Dr. Nourse referred to the early group enterprise as autonomous, confident and exploitative, in part as follows: "This early simple type of individualistic business life is, of course still to be found in parts of our economic system. But it early began to give place to various schemes of group enterprise, in which capitalist employers borrowed money, hired labor, and organized enterprises, some of which snow-balled into group operations of very considerable size. The partnership facilitated the formation of still larger units, but the really striking growth of group enterprise is practically synonymous with the growth of the corporation. . . . If you like convenient dates to hang your history on, we might say that the first, or budding period of private enterprise, characterized the period from the Revolution to the Civil War, and the unfolding period ran from the Civil War to the World War. Since the World War, we have been seeing something of the fully developed fruit of corporate capitalistic enterprise, with new triumphs and new troubles."

Continuing the speaker said in part: "If we would assure the future of private enterprise, we must examine carefully the basis of its achievements and the nature of its shortcomings in past practice. Are these weaknesses being vigorously remedied and these strengths being tenaciously held and further buttressed in our plans for the future? If I may still further simplify my earlier sketch of the evolution of private enterprise, I would say that the system as we have known it until the recent past has been irresponsible and daring. . . . No one who reads the signs and omens in the economic world today can fail to realize that the future of private enterprise hangs in the balance. . . . Businessmen frequently say that private business is going to lose out because the government, the New Deal, the politicians, are going to 'out promise' responsible business leadership. This raises quite sharply the question of what existing business leadership is willing to promise, of what in the last analysis it thinks that private enterprise is capable of doing."

In conclusion, Dr. Nourse summarized "a few bare and categorical propositions:" (1) If given a chance, private enterprise can go ahead in the post-war period and give all of us maximum economic

benefit attainable under any system. (2) It may not be given this chance, because it may be swept away by the pent-up opposition of those who cherish memories of its past shortcomings or are dazzled by the prospect of some quick and easy road to abundance. (3) The one real chance of preserving the system is by united and daring programs of action, by exercising enterprise as well as being private. Risk which would be intolerable for the individual concern shrinks to bearable proportions if private business as a whole adopts and executes a concerted strategy of advance. This would involve the independent but harmonious action of a substantial proportion of separate companies. Cartelization would defeat its own purpose. (4) If the proponents of private enterprise by and large pre-judge the battle as lost or the risk as too great; if they will not step forward and take leadership in such an effort; if the great mass of private business enterprisers will not loyally and aggressively advance under that leadership, it must not then be said that private enterprise has failed or has been destroyed. It will have defaulted."

## Mayors to Aid in Waste Conservation

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 17, 1941—Mayors in 20,000 cities throughout the United States are asked to contribute their efforts to the current national waste paper conservation campaign in letters just sent out by Leon Henderson, administrator of the Office of Price Administration. The letter calls attention to estimates that about 75 per cent of the paper produced in the United States is destroyed by burning and urges the mayors to make sure that all municipal buildings and institutions immediately stop this practice. Other suggestions offered to mayors in the letter are:

Get Chambers of Commerce behind the conservation program.

Impress upon factories and business establishments in each community the importance of conserving waste paper.

Devote press conferences and radio talks to urging householders either to sell or to give away their waste paper, and in all events to stop burning it.

Get waste paper dealers and charitable organizations in each territory to put on greater collection drives.

Mr. Henderson's letter is a further step in OPA's policy to aid in every way possible the conservation campaign begun some time ago by the waste paper consuming industries.

## Geo. W. Millar & Co. Distribute Bonus

Geo. W. Millar & Co., Inc. wholesale paper dealers 284 Lafayette street, New York, following their usual plan of profit sharing with their employees have distributed a liberal bonus to their employees for Christmas. Due to increased business Messrs. Millar have taken several floors in the building next to their warehouses, at 278 to 280 Lafayette street, New York.

## Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

| Current Weeks, 1941 | | Corresponding Weeks, 1940 | |
|---|---|---|---|
| November 8 | 104.8 | November 9 | 85.6 |
| November 15 | 106.5 | November 16 | 84.7 |
| November 22 | 105.5 | November 23 | 84.7 |
| November 29 | 107.5 | November 30 | 84.4 |
| December 6 | 107.0 | December 7 | 85.3 |
| December 13....(Prelim.) | *105.7* | December 14 | 88.3 |

COMPARATIVE MONTHLY SUMMARIES

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July |
|---|---|---|---|---|---|---|---|
| 1940 | 89.1 | 84.7 | 82.3 | 84.3 | 90.0 | 92.1 | 85.3 |
| 1941 | 85.6 | 89.7 | 92.2 | 96.0 | 98.7 | 99.5 | 94.8 |

| Year | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|
| 1940 | 85.1 | 81.5 | 85.5 | 84.9 | 80.9 | 85.6 |
| 1941 | 101.8 | 99.6 | 105.1 | *106.1* | ... | ... |

COMPARATIVE YEARLY SUMMARIES

| | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 |
|---|---|---|---|---|---|---|---|
| Year to Date.. | 70.0 | 80.5 | 81.1 | 71.7 | 83.4 | 86.0 | *97.5* |
| Year Average.. | 69.9 | 80.4 | 79.8 | 71.5 | 83.4 | 85.6 | ... |

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1936 | 62 | 67 | 67 | 70 | 69 | 70 | 69 | 75 | 78 | 82 | 80 | 74 | 72 |
| 1937 | 80 | 86 | 86 | 88 | 85 | 77 | 66 | 74 | 69 | 65 | 55 | 45 | 73 |
| 1938 | 54 | 60 | 61 | 57 | 58 | 56 | 57 | 66 | 66 | 70 | 65 | 59 | 61 |
| 1939 | 60 | 67 | 71 | 69 | 64 | 67 | 63 | 72 | 74 | 84 | 81 | 71 | 70 |
| 1940 | 71 | 70 | 69 | 70 | 76 | 79 | 72 | 74 | 72 | 79 | 77 | 71 | 73 |
| 1941 | 75 | 81 | 82 | 83 | 84 | 88 | 86 | 94 | 94 | 99 | *98* | .. | .. |

Week ending Nov. 8, 1941—97
Week ending Nov. 15, 1941—99
Week ending Nov. 22, 1941—96
Week ending Nov. 29, 1941—101
Week ending Dec. 6, 1941—102
Week ending Dec. 13, 1941—*101*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

## New York Paper Mill Unions Meet

[FROM OUR REGULAR CORRESPONDENT]

GOUNERNEUR, N. Y., December 22, 1941—A meeting of the Northern New York District Council of Paper Mill Unions was held here last week at which resolutions were adopted to support the policies of President Roosevelt and offering the organization's aid in the war effort. Jacob Stephan, a representative of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, addressed the members and urged them to buy defense bonds besides giving fullest support in the fight against the gangsters of the old world. Frank Callahan, of Deferiet, vice president of the council, described the rise of labor within the past twenty years and the increased responsibility which it bears. He declared that labor is the first line of defense upon which the soldiers are dependent. The resolution adopted by the council, comprising a membership of 3,000 affiliated with the American Federation of Labor, states that it is one hundred per cent behind President Roosevelt and that the entire membership will be ready at all times to give their services to the country in order to bring the war to a successful conclusion.

## Drafted Men to Retain Senority

MINNEAPOLIS, December 22, 1941—R. H. M. Robinson, president of Minnesota and Ontario Paper Company, has announced that any employee of the company, its subsidiaries and affiliates who may be drafted into or who may enlist in the armed forces of this country or its allies would retain the seniority of his position. Seniority of the employee will be recognized for 60 days after his honorable discharge from the armed forces.

# QUALITY CASEIN

## TO SERVE THE PAPER INDUSTRY

**THE PRACTICAL USE OF CASEIN** is older than recorded history, but it has been produced in commercial volume for less than half a century. As a binder for holding mineral pigment to the surface of paper, casein is pre-eminent among adhesives. Its multiple advantages . . . strong binding power, ease of application, water resistance, and ready availability . . . have made it a preferred raw material for use in paper coating over other products.

The constitution of casein is so complex that its structural formula has never been fully evolved. Estimates of its molecular weight by different investigators vary from about 13,000 to 200,000. The elementary composition is the same regardless of the type of milk from which it is obtained, but different methods of manufacture produce different physical and chemical properties.

**KINDS OF CASEIN** Casein is usually classified according to the reagents used in separating it from milk, and falls into five main groups:

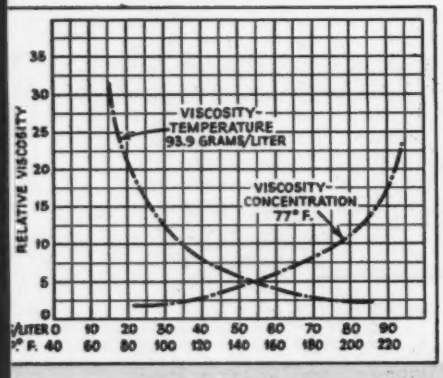
Muriatic, Sulphuric, Lactic, Rennet, and blends of these.

Variations in each group are produced by different manufacturing procedures, and each has its use among the many purposes to which casein is put. Much of the casein being used by the paper industry is produced by blending two or more grades. In this manner it is possible to secure the exact properties required by any particular user.

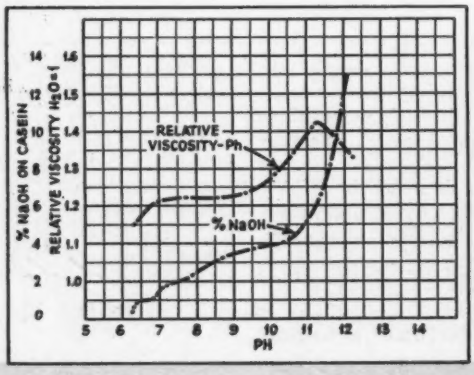
**CYANAMID** offers all of the above grades of casein, including blends, manufactured under strictly controlled methods and by skilled operators. Each lot is carefully tested before shipment to make sure that it conforms to the usual high standard. Cyanamid not only offers the best grades of domestic casein made by the most up-to-date methods, but also is sole agent for the well-known Dairyco Brand of Argentine casein. Since the reduction in duty on imported material, Argentine casein is less expensive than domestic products and merits the attention of casein purchasers.

Cyanamid Laboratories are constantly working on evaluation methods and improved procedures for applying casein to paper. Your Cyanamid representative will be glad to discuss with you these developments in connection with your requirements.

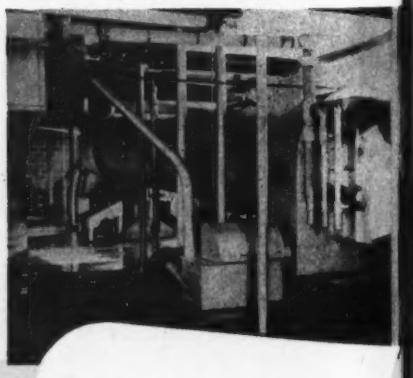
Curves showing relations of viscosity of NaOH casein solutions to concentration and temperature. Viscosity $H_2O=1$. Data of Chick and Martin.


RELATIVE VISCOSITY
VISCOSITY-TEMPERATURE 93.9 GRAMS/LITER
VISCOSITY-CONCENTRATION 77° F.
GRAMS/LITER 0 10 20 30 40 50 60 70 80 90
°F. 40 60 80 100 120 140 160 180 200 220

Curves showing relation of pH of NaOH casein solutions (1% casein on the weight of water) to viscosity and amount of NaOH added. Data of Jacques Loeb.




The photo below shows interior view of one of Cyanamid's casein manufacturing plants, showing modern continuous drier in operation.



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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

# Power Factor Improvement

## A Quick and Economical Way to Increase Electrical Capacity in Your Plant

By M. I. Alimansky[1] and R. E. Insley[1]

### What Is Power Factor

If we were to ask a group of engineers to give us their definition of power factor, we probably would receive many different answers. Each person has his own practical conception of power factor. One of the simplest and easiest to visualize is this one:

*Power factor* is the electrical term used to denote the ratio of useful power current to the total supplied current in a circuit, and can be best explained by two simple examples:

*Example 1:* In an electric circuit supplying a load composed solely of incandescent lights, pressing irons, toasters, water heaters, or other equipment containing no electromagnets, 100% of the current supplied is used to produce heat, light, or other beneficial results. This circuit is said to have 100% power factor.

[1] General Electric Co., Schenectady, N. Y.

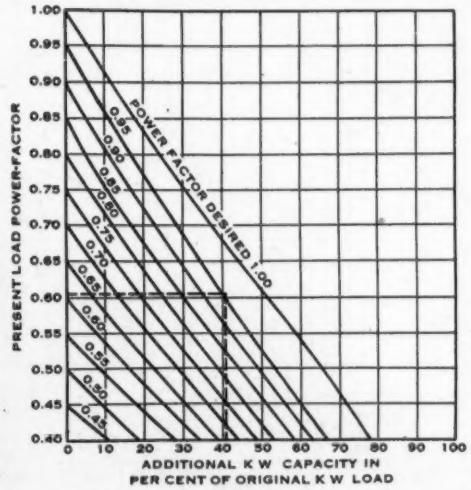


FIG. 1.

**Simplified Chart to Estimate Gain in Load-Carrying Capacity for Plant Power System.**
**Directions: Draw a Horizontal Line from Point at Left Representing Power Factor. This Line Will Intersect Curve Representing Desired New Power Factor. From Point of Intersection, Draw a Vertical Line to Base of Chart and Read the Percentage of New Load Which Your Power System Can Carry After Installation of Capacitors. Example (Dotted Line): Suppose Present Power Factor of a 100-KVA Load Is 60% and Desired Power Factor 95%. Projection of Intersection of 60% Power Factor Line with 95% Power Factor Curve Shows That 41% *New* Load Can Be Carried after Power Factor Improvement—i. e., 41 KVA of New Load Can Be Added to Present System.**

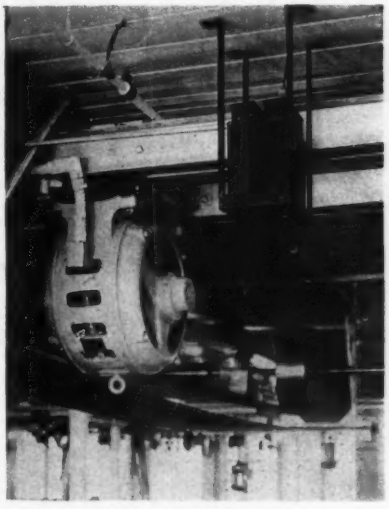

FIG. 2.

**G-E Capacitor Installation Rated 20 KVA, 3-Phase, 60 Cycles, 575 Volts, Consisting of Two 10-KVA Enclosed Dust-Tight Units Installed (Suspended from the Ceiling) in an Alabama Mill.**

*Example 2:* However, if the circuit contains magnetic equipment, such as induction motors, transformers, electromagnets, etc., current must be supplied to energize these. This current, known as *magnetizing current* produces the magnetic field. Magnetizing current actually produces no useful power but nevertheless is necessary for the proper functioning of the equipment. If the total current in a circuit were 100 amperes and the power current only 70 amperes, then the power factor would be: $70 \div 100 = 0.70 = 70\%$.

### Why Do We Worry About Low Power Factor

The generation and distribution system which supplies the circuit of Example 2 must necessarily provide 100 amperes, whereas the actual power current required is only 70 amperes. This means that the electric system must be 100/70 or 143% as large as that of Example 1, in order to provide the necessary magnetizing current.

*Low power factor* then means that the existing generation, transmission, and distribution facilities of the power companies may be loaded to capacity or even overloaded, from the standpoint of current, and yet underloaded from the standpoint of power being delivered. Since, for the same power delivered; low power factor loads impose a greater burden than high power factor, power companies have been allowed to introduce into their power contracts kva-demand and power factor adjustment clauses which impose an extra charge for low power factor. Similarly, for industrials generating their own power, power factor is extremely significant, because the power which can be drawn for production purposes is limited by the amount of generator capacity taken up by magnetizing current.

### How Can We Improve Power Factor

If some device could be found which could be located near the apparatus requiring the magnetizing current, which device were capable of providing this magnetizing current locally, then it would be possible to eliminate the magnetizing current from the generator and feeder, thus releasing system capacity for additional power load. Fortunately, such a device does exist; it is called a *capacitor*. It is obtainable in many voltage and current ratings to fit a particular application. When such a capacitor is installed in the electrical system which previously had a low power factor, the power factor is improved and the system operates more efficiently and inexpensively.

### Where and How Should Capacitors Be Applied

Means for improving power factor should be applied at the source of trouble. Capacitors connected on circuits with low power factor reduce the current between the point where they are connected and the source of supply. Therefore, it is imperative that they be installed at or near the terminals of the machine drawing the magnetizing current.

In selecting capacitors, it is possible to work out the optimum value of capacitor rating mathematically, but these calculations are laborious, especially when a number of cases are to be computed. "Short-cut" methods have been devised, as shown in Fig. 1.

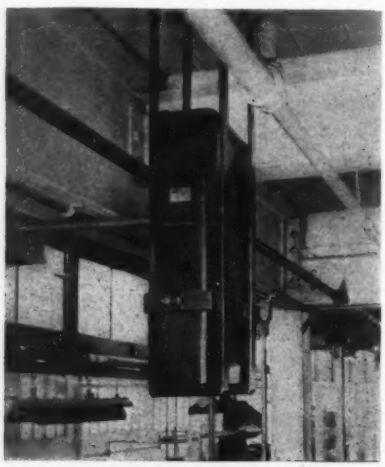

FIG. 3.
**G-E Indoor Rack-Type Pyranol Capacitor, 300 KVA.**

TAPPI SECTION, PAGE 326

FIG. 4.
**G-E "Pyranol" Capacitor, 15 KVA, 440 Volts, Suspended from Ceiling.**

CONDENSED TABLE SHOWING HOW MUCH NEW LOAD CAN BE ADDED AFTER POWER FACTOR IMPROVEMENT

| Original Power factor | New load that can be added in percentage of present load with power factor improved to: | | |
|---|---|---|---|
| | 90% | 95% | 100% |
| 60% | 35.8 | 41 | 51.5 |
| 65% | 29 | 35 | 44 |
| 70% | 23 | 28.5 | 37 |
| 75% | 17 | 22.5 | 30 |

### Conclusion

In many industrial plants, existing circuits, transformers, and switching equipment can be made to carry additional power load by the application of capacitors to improve power factor. This is especially valuable under present conditions, since capacitors are flexible, inexpensive, and obtainable in relatively short time.

## Early Logging Days at Tupper Lake

A banquet of employees of the Santa Clara Lumber Company was held recently at Tupper Lake, N. Y., at which reminiscences of the early logging days in that section were discussed. In 1898 when the St. Regis Paper Company was formed the Santa Clara Lumber Company moved to Tupper Lake and the manufacture of processed chips for sulphite and other chemical processes of manufacturing pulp was developed there. Shipments of from eight to ten carloads of chips were made from the mill daily. Top wages for skilled lumberjacks were about $13 a month in the early days, it was recalled, and the company records show that the men were well fed on an average of twenty-three cents a day each. The best grade of spruce sold for about $8.50 a thousand and land had the same low valuation. Disappointments marked the earliest operations of the concern along the St. Regis River. The founders had expected to find great stand of pine but instead were faced with the problem of finding a way to utilize spruce which predominated. That problem was saved by the erection at St. Regis Falls of two rossing machines and the company made what was believed to be the first sale on record of two-foot rossed pulpwood to the West End Paper Company, of Carthage. Moving pictures of logging operations here and of big game hunting in the Rockies were shown at the close of the program.

# Brightness of Paper*

## TAPPI Suggested Method T 452 sm-41

The term "brightness", as applied to white and near-white papers, has come to be associated with the numerical value of the reflectance of those papers to light in the blue and violet portions of the spectrum, the measurement being made using a particular type and make of instrument under carefully controlled conditions. This special use of the term was derived from long use of the word as descriptive of the "whiteness" of papers in the pulp and paper industry and from the fact that the results from brightness measurements on each of two "white" papers will usually correlate well with subjective estimates of the relative whiteness of the two samples. If this correlation does not obtain, it will usually be found that a subjectively whiter paper can be produced from the materials used in the making of the sheet having the higher brightness test value.

This use of the term "brightness" is applicable to all naturally colored pulps and to papers made therefrom. A measurement of brightness, *per se*, is of little significance when the paper contains added coloring matter (such as yellow or green dyestuff) which appreciably absorbs light in that part of the spectrum extending from about 400 to 500 millimicrons ($m\mu$). Such a measurement may have significance if it be one of several reflectivities obtained at various effective wavelengths for the purpose of establishing spectral reflectivity.

It is important to assure as far as possible (1) that all brightness tests be on a single scale, that scale being the one to which the presently used instruments conform; (2) that means be provided for checking the calibration of every instrument used for brightness testing so that the user may rely upon the test results; and (3) that criteria be provided in optical, geometrical and photometrical characteristics from those now generally used may safely be employed in performing the brightness test.

The test procedure here given divides logically into three parts in the sequence given below:

1. A detailed description of the significant spectral, geometrical and photometrical characteristics of a master instrument to be maintained in a central standardizing laboratory with a statement of the tolerances which must be maintained in its construction, maintenance and use. This includes also a description of a method of preparation of a primary reflectance standard and of a system of secondary reflectance standards against which variations in the brightness scale with the passage of time can be checked.

2. Description of a system of preparation, distribution and use of reflectance standards by which the instrument can be maintained in continuous agreement, to within specified tolerances, with the master instrument.

3. Test procedures for use of the instrument itself in measuring the brightness of samples of papers and pulp test sheets.

Only the third part will usually be of interest to one desiring to make a brightness determination. This being the case, the discussion of the master instrument and of the standardizing system is given in Appendices A and B.

Appendix A furnishes sufficient basic information for one to determine whether or not a particular instrument differing in constructional details from the master instrument is likely to give results in satisfactory agreement with the master instrument. The system of calibrated secondary standards (*see* Appendix B) should enable one to check, by actual measurement, whether or not such an instrument gives and continues to give sufficiently accurate results *(1)*.

### Apparatus

INSTRUMENT

The instrument shall be a reflection meter of such design and in such adjustment that its calibration is correct to within the tolerances specified in the section on Calibration.

Note: Identity of reading with that of the master instrument on one or two of the secondary standards is not sufficient proof that readings on the test instrument and on the master instrument will be identical on all samples even though the latter have brightness values very close to that of the secondary standard in question. If the instrument reads properly on all the secondary standards, it will usually be in proper calibration.

BRIGHTNESS STANDARDS

The secondary standards of brightness shall comprise, in each set, at least five pads of paper tabs and two working standards, all of brightness accurately established by measurement on the master instrument. The ultimate standard is a properly formed layer of magnesium oxide[1]. For further details regarding the standards *see* Appendices A and B.

### Calibration

When in use, check the instrument readings against the assigned values of all the secondary standards at least daily. If the instrument is found to be appreciably in error (the largest discrepancies being greater than about 0.3 point), adjust the instrument (frequently the focus of the lamp image) so that the readings of the paper brightness standards against those of the working standards agree with the assigned values.

Obtain brightness standards set by the master instrument at monthly intervals and calibrate the instrument with their aid as soon as they are received. (*See* Appendix B.)

At intervals of one to three years, depending upon the conditions of use, the instrument should be disassembled and carefully inspected, tested and adjusted to insure that its geometrical and spectral variables fall within proper limits, and that its photometric system is accurate.

### Test Specimens

Cut the paper into tabs 2 by 1½ in. (±1/16 in.), the short dimension being in the machine direction and the number of sheets being such that when ar-

* This method is suggested by the Optical Properties Committee as being the most suitable to date for its purpose. It is *not*, however, a TAPPI standard. Criticisms of it are earnestly requested and should be sent promptly to R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, 122 E. 42nd St., New York, N. Y.

[1] *See* Natl. Bur. Standards *Letter Circular* L.C. 547, "Preparation and Colorimetric Properties of a Magnesium Oxide Reflectance Standard."

ranged in a pad, the brightness of the pad is not changed by doubling its thickness. Assemble the tabs in a pad, felt sides up and mark the top tab near the edge to indicate the felt side. Do not use the cover tab for brightness measurements.

Do not include in that portion of the area of the test specimens used for the measurement of brightness watermarks, large dirt specks, blemishes or anything that might influence the accuracy of the result. Protect the test specimens from contact with the fingers or contaminating agents and from the destructive influences of elevated temperature, light and time.

### Procedure

Without contaminating the test areas of the specimens with the fingers or other objects, remove the protective cover tab, placing it on the *back* of the pad, then place the pad of paper tabs over the sample aperture of the instrument with the machine direction of the paper parallel to the plane determined by the axes of the incident and reflected rays of light, and with the felt or top side facing the instrument. If it be considered desirable (as in the testing of creped or embossed specimens) to orient the test specimen in some other manner, the direction used shall be clearly and conspicuously stated in the report.

Place a 1-kg. weight having a plane base upon the pad. Measure and record the brightness reading to 0.1 unit. Move the lower tab to the back of the pad and make another brightness determination. Repeat this procedure until six different tabs have been tested.

### Report

The report shall state the average percentage brightness of the sample (based on magnesium oxide = 100.0), to one decimal place, together with the minimum and maximum readings. It shall also state clearly and conspicuously any deviations from the standard procedure and note any unusual features or characteristics of the sample.

### Literature Cited

1. Instrumentation Studies. XIII, *Paper Trade J.* 104, no. 18:47-53; no. 19:51-63; no. 20:45-49 (May 6, 13, 20, 1937). XX, *Paper Trade J.* 105, no. 18:135-141; no. 19:27-39 (Oct. 28, Nov. 4, 1937). XXI, *Paper Trade J.* 105, no. 25:46-50 (Dec. 16, 1937). XXII, *Paper Trade J.* 105, no. 27:42-46 (Dec. 30, 1937). XXVIII, *Paper Trade J.* 107, no. 20:33-37 (Nov. 17, 1938). XXIX, *Paper Trade J.* 107, no. 25:29-40 (Dec. 22, 1938). XXXVII, *Paper Trade J.* 112, no. 1:13-22 (Jan. 2, 1941).
Davis, M. N., *Paper Trade J.* 101, no. 1:36-44 (July 4, 1935).
Hunter, *J. Optical Soc. Am.* 30, 536 (1940).
Michaelson, J. L., *Gen. Elec. Rev.* 38, no. 4:194-196 (April, 1935).

### Additional Information

For the preparation of test sheets for the determination of the brightness of pulp *see* T 217 sm-41.

### Appendix A—Master Instrument

In order to evaluate the brightness of the standards employed in the adjustment and calibration of all instruments used for the measurement of brightness as set forth in this method, a master instrument shall be maintained so that it will, at all times, correctly measure the brightness of paper relative to that of freshly prepared magnesium oxide, which latter is taken equal to 100.0%.

The master instrument is defined by characteristics which are classified as *spectral, geometrical* and *photometrical.* These defining characteristics shall be as follows:

1. Spectral Characteristics

*(a)* The effective wavelength of the instrument when used with the filter required for the determination of brightness shall be 457.0 ±0.5 mμ. The effective wavelength is that wavelength of monochromatic light for which the transmittance of a filter having spectral transmittance given by $T = a + b\lambda$ is equal to that determined with the master instrument, after proper account or correction is made for effects associated with refraction and reflection, angular spread of rays through the filter, photometric error, and wavelength error in the spectrophotometer employed to determine the spectral transmittance. In the foregoing equation, which need hold only for that wavelength range encompassed by the brightness filter, $T$ is transmittance, $a$ and $b$ are constants and $\lambda$ is wavelength. The effective wavelength of the master instrument shall be determined by the method associated with the foregoing definition (*see* Additional Information 1). If the filter having a linear spectral transmittance consists of a film or plate, its transmittance shall be measured relative to a clear, nonabsorbing film or plate of equal thickness and similar index of refraction; if it be a liquid filter, the transmittance shall be measured relative to a clear, nonabsorbing liquid filter comprised of an identical filter cell containing the pure solvent used for the solution in the absorbing liquid filter. The spectral transmittance shall be so measured in both the master instrument and the spectrophotometer, and the cells shall be so disposed with respect to apertures as to minimize error due to scattering of light in the filters and to make such error as may be due to light scattering the same in the master instrument and the spectrophotometer (*see* Additional Information 2).

*(b)* The area under the curve, which represents the product for all wavelengths greater than 700 mμ of the spectral sensitivity of the photoelectric cell and the spectral transmittance of all filters between the sample aperture and the photoelectric cell, shall be so small compared with the similar area for the wavelength range 360 to 510 mμ that no detectable part of the photoelectric current may be ascribed to infrared fluorescent light arising in the test specimen (*see* Additional Information 3).

*(c)* The spectral energy distribution of the light incident upon the test specimen shall be of such nature that (1) the rate of absorption of energy in the test specimen shall be insufficient to cause an appreciable elevation of temperature, and (2) the intensity of ultraviolet light shall be insufficient to modify the reflectivity of the test specimen through photochemical reaction during the course of measurement.

*(d)* The effective wavelength, 457.0 ±0.5 mμ, shall be arrived at by the combination of (1) lamp, glass optics, and filters, for which the mathematical product of relative spectral energy distribution and spectral transmission is $F(\lambda)$; and (2) a photoelectric cell chosen to make the effective wavelength 457.0 ±0.5 mμ, where $F(\lambda)$ is that function of wavelength given in Table I.

TABLE I.—PRODUCT OF RELATIVE SPECTRAL ENERGY DISTRIBUTION, SPECTRAL TRANSMISSION OF GLASS OPTICS AND SPECTRAL TRANSMISSIONS OF ALL FILTERS

| Wavelength, mμ | $F(\lambda)$ (arbitrary units) | Wavelength, mμ | $F(\lambda)$ (arbitrary units) |
|---|---|---|---|
| 360 | 0.0 | 440 | 58.6 |
| 370 | 0.1 | 450 | 90.5 |
| 380 | 0.8 | 460 | 99.8 |
| 390 | 1.9 | 470 | 83.5 |
| 400 | 4.4 | 480 | 52.0 |
| 410 | 8.3 | 490 | 23.1 |
| 420 | 16.2 | 500 | 8.0 |
| 430 | 32.1 | 510 | 0.0 |

*Note:* The foregoing may be illustrated with information regarding the master instrument with which the existing scale of brightness has been established. The function $F(\lambda)$ is the product of the relative spectral energy distribution of the light from a concentrated filament lamp operated at a color temperature of 3199 deg. K; the spectral transmission of four aspheric lenses (two between light source and sample aperture and two between sample aperture and photoelectric cell); the spectral transmission of a filter cell containing a 1-cm. thickness of a 10% copper sulphate solution containing 1% conc. sulphuric acid (placed between light source and sample aperture to remove heat from incident rays); the spectral transmission of a particular Wratten 49 filter, the measured spectral transmission of which has arbitrarily been taken as standard (this filter between sample aperture and photoelectric cell); and the spectral transmission of a Jena BG-18, melt S1152, filter ground to a thickness of 0.020 in., which is placed between the sample aperture and the photoelectric cell to remove any infrared fluorescent light arising in the test specimen.

The photoelectric cell used shall be regarded as satisfactory if, and only if, its use results in the instrument having the proper effective wavelength, as determined by the method given in *(a)* above.

The permissible range of variation from the values presented in Table I shall be that corresponding to the wavelength range, $\pm 1.5$ m$\mu$; independently of this restriction upon $F(\lambda)$, the effective wavelength shall be maintained between 456.5 and 457.5 m$\mu$.

*(e)* The minimum value of the spectral sensitivity of the photoelectric cell or combination of filter and photoelectric cell in the range 400 to 500 m$\mu$ shall be not less than one third the maximum value in that range. This restriction precludes the use of a combination of filter and photoelectric cell or photoelectric cell alone which gives rise to proper effective wavelength, but is responsive to a wavelength range less than that encompassed by the data of Table I. Preferably the spectral sensitivity curve shall be free of strong curvature in the range 400 to 500 m$\mu$.

2. Geometric Characteristics

*(a)* The mean angle of incidence of rays upon the test specimen shall be $45 \pm 1$ deg.

*(b)* The incident rays upon a point of the test specimen shall be confined within a cone having a half angle of $11.5 \pm 2$ deg. This cone shall be filled with light, have its vertex in the sample aperture, and base at the emergent aperture of the condensing lenses.

*(c)* The sample aperture shall be circular and have a diameter of between 0.460 and 0.500 inch; however, the exit aperture of the optical system which accepts reflected rays for measurement shall be coincident with the image of the disk concentric and coplanar with the sample aperture, and have a diameter of $0.375 \pm 0.02$ inch, so that light reflected from the rim of the sample aperture shall not arrive at the photoelectric cell.

*(d)* The mean angle of rays reflected by the test specimen and accepted by the receiving optical system for measurement shall be between 0 and 1 deg. with the normal to the plane of the sample aparture.

*(e)* The accepted reflected rays shall be confined within a cone having a half angle of $22.5 \pm 2$ deg.

3. Photometrical Characteristics

*(a)* A null photometric method shall be employed. Light intensity shall be regulated by means of a sector diaphragm, in the following manner: With the test specimen over the sample aperture, the sectors of the photometer shall be opened to the angle corresponding to the reflectance of the standard, and the photoelectric current shall be noted; then, with the standard over the sample aperture, the sectors shall be so adjusted that the photoelectric current returns to the previously noted value, and the reflectance of the sample shall be read from the reflectance scale.

*(b)* The sector diaphragm shall be placed between the pair of lenses of the receiving optical system with its center on the optic axis, and shall be comprised of (1) a pair of sectors in a fixed plate, each bounded by radii separated by 93 deg. and circles of radii respectively 0.188 and 1.125 inches, each radius being constant to within $\pm 0.001$ inch, the two members of the pair being separated by 180 deg. and centered upon a line which is perpendicular to the plane containing the axes of the incident and reflected rays of light; and (2) a rotatable pair of sectors, geared to a reflectance dial, each sector bounded by radii separated by 90 deg. and circles of radii respectively $0.188 \pm 0.001$ inch and approximately 1.2 inches, the two members of the pair being separated by 180 deg., and the nature of the gear train being such that, when the reflectance dial is set at 100, the openings formed by the two pairs of sectors are each approximately 83 deg., and, when the reflectance dial is set at zero, the openings are $0.0 \pm 0.1$ deg.

*(c)* The defining edges of the sector diaphragm shall be thin and so beveled and blackened as to be non-reflecting. The plane of the sharp edges of the fixed sectors shall be in contact with that of the rotatable sectors, and the two pairs of sectors shall be concentric to within 0.001 inch.

*(d)* The reflectance dial and the train of gears linking this dial with the sector diaphragm shall be of such accuracy that the total area of opening of the sector diaphragm shall be directly proportional to the dial reading to within 0.1% of the full opening.

4. Calibration of Working Standards for Use with Master Instrument

The ultimate standard of reflectance, magnesium oxide (MgO), shall be prepared in accordance with National Bureau of Standards *Letter Circular* No. L.C. 547, "Preparation and Colorimetric Properties of a Magnesium Oxide Reflectance Standard", with the following added details. Split a block of magnesium carbonate in two, and with a clean straight edge, scrape an inner surface so as to render it plane. For smoking the surface use C.P. magnesium ribbon cut in lengths of about 9 inches. Before burning, clean the surface of the ribbon thoroughly with emery or sand paper; then rub with a clean cloth. Preferably working under a hood, ignite the end of a length of the ribbon with a Bunsen burner. (The operator should wear a pair of goggles equipped with dark glass to protect the eyes from the harmful effects of the ultraviolet light emitted by the burning ribbon.) Hold the surface of the magnesium carbonate block to be coated in the stream of smoke rising from the flame, at a distance not less than 3½ inches above the tip of the flame. Burn enough ribbon so that a layer of MgO at least 0.5 mm. thick is deposited upon the block. Prepare at least six such blocks.

In turn place each block over the sample aperture of the master instrument upon shims which have been previously placed in position to hold the blocks so that the easily compressed layer of MgO will only just touch the surface. This may be judged by sighting beneath the MgO block. If shims are not used, a small disk of the MgO will be extruded into the sample opening, and an erroneously high instrumental reading will result. Compare the reflectance of each of the prepared surfaces with each other and discard any obvious inferior surfaces. Measure the reflectances of a master working standard, by assigning a reflectance of 100.0% to each MgO surface, and average the results to arrive at the assigned reflectance

of the master working standard. Repeat this procedure for at least fifteen different master working standards, eight of which exhibit a reasonably flat spectral reflectance curve, and seven of which are buff colored (having spectral reflectances somewhat similar to that of typical pulps).

### Appendix B—Calibration Service

The central laboratory to which is delegated the responsibility of maintaining and operating the master instrument will, upon arrangement, distribute secondary standards for the calibration service. A set of secondary standards usually will comprise at least five pads of paper tabs and two working standards of brightness accurately established by measurement on the master instrument.

The paper standards will cover a range from about 60 to 85% brightness. The paper from which these standards are prepared will have the following properties: (1) its brightness shall not change over a reasonable period of time; (2) it shall be white; (3) it shall be clean; (4) it shall be uniform in brightness; and (5) it shall have a relatively smooth surface, but shall not be supercalendered.

The working standards will satisfy the following requirements: (1) the surface shall not deviate from a true plane by more than 0.0015 inch in a central circle of diameter ⅝ inch and shall not be concave; (2) the nature of the surface polish and hardness, and the optical stability of the material shall be such that the brightness during one month of intensive but careful use shall not vary more than 0.3 point; (3) the nature of the surface and of the material shall be such that the standards may be easily and effectively cleansed, and sufficiently resistant to withstand several cleanings per day; and (4) the color of the working standards shall be white or cream, but the maximum spectral reflectivity shall not be more than twice the minimum in the wavelength range, 400 to 500 mμ.

The standards for calibration of instruments which have spectral, geometrical or photometrical characteristics differing from those of the master instrument require special consideration. They will comprise only paper standards similar to those described above except for a possible difference in size, and the standard scale of brightness shall be transferred to such an instrument only through the use of such paper standards. The readings from such an instrument and the master instrument may not agree for both the paper and working standards because of differences between these standards in translucency, surface, spectral or other characteristics. For this reason special working standards for such an instrument shall be evaluated by that instrument in terms of the brightness values assigned by the master instrument to paper standards only. The following requirements also shall be satisfied: After having evaluated the average reflectance of any such special working standard by means of the several paper standards, the individual reflectance readings for the special working standard shall not deviate from the average reflectance by more than 0.3 point.

A set of calibrated paper and working standards will be distributed at monthly intervals. Upon their receipt the working standards in use shall be returned to the central laboratory for restandardization.

### Additional Information

1. A solution in a filter cell having a linear spectral transmittance over the range 400 to 500 mμ may conveniently comprise a dilution in distilled water of "Coca-Cola" which has been warmed to remove the dissolved gases, the concentration being in the neighborhood of about 40% Coca-Cola and 60% distilled water, the exact concentration being arrived at by test of linearity of the spectral transmittance. The spectral transmittance must be measured relative to an exactly similar filter cell containing distilled water.

2. In the master instrument the filter cells are placed just above the aperture which admits light to the photoelectric cell, so that the ratio of diameter of aperture to distance between the filter cell and aperture is not small. When the filter cells are placed in the spectrophotometer, they are so positioned that a similar ratio of aperture diameter to filter cell-aperture distance obtains.

3. "Instrumentation Studies. XIII," *Paper Trade J.* 104, no. 18:47-53; no. 19:51-63; no. 20:45-49 (May 6, 13, 20, 1937).

4. For "Brightness of Pulp *see* TAPPI Suggested Method T 217 sm.

## Kalamazoo TAPPI and Supers to Meet

The seventh annual joint meeting of the Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry and the Michigan Division of the Superintendents Association will be held at the Park-American Hotel, Kalamazoo, Mich., on Thursday, January 15, 1942 at 6:30 P.M.

E. W. Tinker, executive secretary of the American Paper and Pulp Association will be the principal speaker and will discuss current problems of the industry.

This meeting is one of the best attended meetings held annually by any of the groups constituting these great national organizations. The national officers of both organizations usually attend and are expected this year. D. C. Everest of the Marathon Paper Mills is expected to be a guest.

Reservations should be made early with Joseph L. Waber of the Rex Paper Company, Kalamazoo, Mich.

## Canadian Medal Awards

Two medals will be presented at the annual luncheon of the Technical Section of the Canadian Pulp and Paper Association on Friday, January 30, 1942.

The Weldon Medal will be awarded to Carl D. Jentz, sulphite superintendent, St. Lawrence Paper Mills Company, Ltd. for his paper on the Flash Roasting of Pyrites read at the 1941 annual meeting.

The Howard Smith Medal will be awarded to K. D Running, asst. control superintendent of the Anglo-Canadian Pulp and Paper Mills Ltd. for his paper on Hardwoods Utilization presented at the 1941 meeting.

## TAPPI to Meet at Watertown

The Empire State Section of the Technical Association of the Pulp and Paper Industry will meet at the Woodruff Hotel, Watertown. N. Y. on Saturday, January 10, 1942.

# Brightness of Pulp*

## TAPPI Suggested Method T 217 sm-41

The term "brightness", as applied to white and near-white papers, has come to be associated with the numerical value of the reflectance of those papers to light in the blue and violet portions of the spectrum, the measurement being made using a particular type and make of instrument under carefully controlled conditions. This special use of the term was derived from long use of the word as descriptive of the "whiteness" of papers in the pulp and paper industry and from the fact that the results from brightness measurements on each of two "white" papers will usually correlate well with subjective estimates of the relative whiteness of the two samples. If this correlation does not obtain it will usually be found that a subjectively whiter paper can be produced from the materials used in the making of the sheet having the higher brightness test value. The above use of the term "brightness" is also applicable to all naturally colored pulps.

It is highly important to assure as far as possible (1) that all brightness tests be on a single scale, that scale being the one to which the presently used instruments conform; (2) that means be provided for checking the calibration of every instrument used for brightness testing so that the user may rely upon the test results; and (3) that criteria be provided by which one may judge whether or not any instrument differing in optical, geometrical and photometrical characteristics from those now generally used may safely be employed in performing the brightness test.

This test procedure divides logically into four parts in the sequence given below:

1. A description of the procedure for forming handsheets for brightness tests.

2. A detailed description of the significant spectral, geometrical and photometrical characteristics of a master instrument to be maintained in a central standardizing laboratory with a statement of the tolerances which must be maintained in its construction, maintenance and use. This includes also a description of a method of preparation of a primary reflectance standard and of a system of secondary reflectance standards against which variations in the brightness scale with the passage of time can be checked.

3. Description of a system of preparation, distribution and use of reflectance standards by which the instrument can be maintained in continuous agreement, to within specified tolerances, with the master instrument.

4. Test procedures for use of the instrument itself in measuring the brightness of samples of pulp test sheets.

Only the first and fourth parts will usually be of interest to one desiring to make a brightness determination of pulp. This being the case, the discussion of the master instrument and of the standardizing system is given in Appendices A and B.

Appendix A furnishes sufficient basic information for one to determine whether or not a particular instrument differing in constructional details from the master instrument is likely to give results in satisfactory agreement with the master instrument. The system of calibrated secondary standards (*see* Appendix B) should enable one to check, by actual measurement, whether or not such an instrument gives and continues to give sufficiently accurate results *(1)*.

### Forming Handsheets for Birghtness Tests

This method is designed for application to all unbleached and bleached pulps, provided that they have been so processed in manufacture that the individual fibrous elements have become separated. The method describes a technique which permits the preparation of a reasonably smooth and reproducible surface for brightness measurement with a minimum of washing and contamination of the sample. This precludes the use of the sheet mold as specified in TAPPI Standard T 205 m, Forming and Testing Pulp Sheets, because of the large volume of dilution water, its uncertain purity, and the possible contamination of certain unbleached pulps with copper.

#### Apparatus

The following equipment as specified in Standard T 205 m-40 is required:

1. Standard disintegrator.
2. Standard pump and press with pressure gage.
3. Press template for centering the sheets in the press.
4. Three or more drying rings with rubber seatings for holding the sheets during drying.
5. A quantity of sheets of standard white blotting paper, 8 inches square, 0.0195-0.0205 inch thick, weighing 245 to 255 grams per square meter, and having an absorbency such that when strips are immersed in distilled water at 15 deg. C. the average height to which the water rises in 10 minutes in both machine and cross directions is from 40 to 60 mm.[1]

The following additional equipment is required also:

6. Porcelain Büchner funnel, inside diameter 16 cm.
7. Suction flask, capacity 1500 cc. or more.
8. A supply of rapid-draining white filter paper, 15 cm. in diameter and free of soluble impurities.
9. A supply of uncreped white filter paper, 18.5 cm. in diameter and free of soluble impurities.

#### Sampling

The sample shall be so selected that it accurately represents the pulp as a whole. The weight of the sample shall be equivalent to at least 20 grams of dry fiber.

#### Storage of Pulp Samples

The brightness of many pulps may decrease significantly during the first few hours after manufac-

* This method is suggested by the Optical Properties Committee and the Pulp Testing Committee as being the most suitable to date for its purpose. It is *not*, however, a TAPPI standard. Criticisms of it are earnestly requested and should be sent promptly to the Secretary, Technical Association of the Pulp and Paper Industry, 122 E. 42nd St., New York City, N. Y.

[1] Paper according to specification may be obtained from the Wrenn Paper Company, Middletown, Ohio, and from the Standard Paper Manufacturing Company, Richmond, Virginia.

ture. As a control test, therefore, brightness readings are sometimes of little value unless taken at a definite interval after processing. This interval should be stated in the brightness report. In any event, the pulp samples for the brightness test should be stored in such a manner that they are not subject to contamination, to change in moisture content, or to the influence of light and/or elevated temperature.

TEST SPECIMEN

Weigh out to the nearest 0.1 gram a representative specimen equivalent to 4 grams of moisture-free fiber.

PROCEDURE

1. *Disintegration.* Dilute the specimen to 2000 cc. with *distilled* water at room temperature and disintegrate for 15,000 revolutions in the standard disintegrator. Immediately divide the contents of the disintegrator equally between two 1-liter graduated cylinders.

2. *Sheet Making.* Insert the Büchner funnel in the neck of the suction flask and set the flask upon a level surface. Place a sheet of the 15-cm. filter paper in the funnel and wet it with distilled water from a wash bottle. Apply suction momentarily in order to seat the filter paper properly in the funnel. Ascertain that the funnel is level by pouring a few cubic centimeters of distilled water on the filter paper and sucking this water slowly through the paper. The water layer should disappear simultaneously over the entire area of the filter.

Applying suction, rapidly pour in one liter of the disintegrated stock. Continue the application of suction to the filter flask until the excess water has been removed, then turn off the suction line, and remove the funnel immediately in order to avoid drawing air through the pulp mat.

3. *Pressing.* Lay two new pieces of standard blotting paper on the press, felt side uppermost. Upon these lay one sheet of the 18.5-cm. filter paper with its felt side uppermost. Invert the Büchner funnel over the press and, by blowing, deposit the handsheet, with its filter paper centrally upon the surface thus prepared. Center the sheet by means of the press template. Cover with two more new pieces of standard blotting paper, felt side uppermost.

Repeat the operations of Paragraphs 2 and 3, using the other liter of disintegrated stock. The stock will then consist of a repetition of the following series: two blotters, 18.5-cm. filter paper, brightness handsheet, and 15-cm. filter paper. Finally, lay two blotters on the uppermost sheet. If required, as many as five pairs of handsheets may be pressed simultaneously in this manner.

Put on the cover of the press and screw the wing nuts down hand tight. Raise the pressure, as indicated by the gage, to 50 p.s.i.[2] in one-half minute from the time the needle begins to move, and maintain it there for 5 minutes. At the end of that time, release the pressure and remove the press cover.

4. *Drying.* Remove the stack from the press and fit the test sheets, still covered with filter papers, into a set of drying rings in such a manner that the 18.5-cm. filter paper supports the sheet. Place a heavy weight on top of the pile.

Dry the test sheets with the attached filter papers in the drying rings at room temperature in an atmosphere with relative humidity not over 65%. To accelerate the drying operation, circulate the air through the drying rings by means of a fan, but do not use hot air.

5. *Testing of Sheets.* After the sheets are thoroughly air dry, remove them from the drying rings with the filter papers attached. Do not remove the latter until the sheets are cut into tabs for the brightness readings. The test surface shall be the one next to the 18.5-cm. filter paper, which was the top surface as the sheet rested in the Büchner funnel.

The interval between the sheet formation and the actual brightness reading shall not be less than 2.0 nor more than 4.0 hours, as in some instances the brightness of the sheets may change with time.

[2] This is equivalent to approximately 60 p.s.i. on the sheet.

## Additional Information

This procedure is adapted from Method 412 of the Institute of Paper Chemistry, Appleton, Wis.

## Determination of Brightness

INSTRUMENT

The instrument shall be a reflection meter of such design and in such adjustment that its calibration is correct to within the tolerances specified in the following section on Calibration.

Note: Identity of reading with that of the master instrument on one or two of the secondary standards is not sufficient proof that readings on the test instrument and on the master instrument will be identical on all samples even though the latter have brightness values very close to that of the secondary standard in question. If the instrument reads properly on all the secondary standards, it will usually be in proper calibration.

BRIGHTNESS STANDARDS

The secondary standards of brightness shall comprise, in each set, at least five pads of paper tabs and two working standards, all of brightness accurately established by measurement on the master instrument. The ultimate standard is a properly formed layer of magnesium oxide.[3] For further details regarding the standards *see* Appendices A and B.

CALIBRATION

When in use, check the instrument readings against the assigned values of all the secondary standards at least daily. If the instrument is found to be appreciably in error (the largest discrepancies being greater than about 0.3 point), adjust the instrument (frequently the focus of the lamp image) so that the readings of the paper brightness standards against those of the working standards agree with the assigned values.

Obtain brightness standards set by the master instrument at monthly intervals and calibrate the instrument with their aid as soon as they are received. (*See* Appendix B.)

At intervals of one to three years, depending upon the conditions of use, the instrument should be disassembled and carefully inspected, tested and adjusted to insure that its geometrical and spectral variables fall within proper limits, and that its photometric system is accurate.

TEST SPECIMENS

Cut the test sheet into tabs 2 by 1½ in. ($\pm\frac{1}{16}$ in.), the short dimension being in the machine direction and the number of sheets being such that when arranged in a pad, the brightness of the pad is not changed by doubling its thickness. Assemble the tabs in a pad, felt sides up and mark the top tab near the

[3] *See* Natl. Bur. Standards *Letter Circular* L.C. 547, "Preparation and Colorimetric Properties of a Magnesium Oxide Reflectance Standard."

edge to indicate the felt side. Do not use the cover tab for brightness meaurements.

Do not include in that portion of the area of the test specimens used for the measurement of brightness watermarks, large dirt specks, blemishes or anything that might influence the accuracy of the result. Protect the test specimens from contact with the fingers or contaminating agents and from the destructive influences of elevated temperature, light and time.

PROCEDURE

Without contaminating the test areas of the specimens with the fingers or other objects, remove the protective cover tab, placing it on the *back* of the pad, then place the pad of handsheet tabs over the sample aperture of the instrument with the felt or top side facing the instrument. Make one half of the determinations using one orientation of the tabs, and the other half with the samples turned through 90 deg.

Place a 1-kg. weight having a plane base upon the pad. Measure and record the brightness reading to 0.1 unit. Move the lower tab to the back of the pad and make another brightness determination. Repeat this procedure until six different tabs have been tested.

REPORT

The report shall state the average percentage brightness of the sample (based on magnesium oxide = 100.0), to one decimal place, together with the minimum and maximum readings. It shall state also clearly and conspicuously any deviations from the standard procedure and note any unusual features or characteristics of the sample handsheets.

## Literature Cited


1. Instrumentation Studies. XIII, *Paper Trade J.* 104, no. 18:47-53; no. 19:51-63; no. 20:45-49 (May 6, 13, 20, 1937). XX, *Paper Trade J.* 105, no. 18:135-141; no. 19:27-39 (Oct. 28, Nov. 4, 1937). XXI, *Paper Trade J.* 105, no. 25:46-50 (Dec. 16, 1937). XXII, *Paper Trade J.* 105, no. 27:42-46 (Dec. 30, 1937). XXVIII, *Paper Trade J.* 107, no. 20:33-37 (Nov. 17, 1938). XXIX, *Paper Trade J.* 107, no. 25:29-40 (Dec. 22, 1938). XXXVII, *Paper Trade J.* 112, no. 1:13-22 (Jan. 2, 1941).
Davis, M. N., *Paper Trade J.* 101, no. 1:36-44 (July 4, 1935).
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Michaelson, J. L., *Gen. Elec. Rev.* 38, no. 4:194-196 (April, 1935).


## Appendix A—Master Instrument

In order to evaluate the brightness of the standards employed in the adjustment and calibration of all instruments used for the measurement of brightness as set forth in this method, a master instrument shall be maintained so that it will, at all times, correctly measure the brightness of pulp handsheets relative to that of freshly prepared magnesium oxide, which latter is taken equal to 100.0%.

The master instrument is defined by characteristics which are classified as *spectral, geometrical* and *photometrical.* These defining characteristics shall be as follows:

1. SPECTRAL CHARACTERISTICS.

*(a)* The effective wavelength of the instrument when used with the filter required for the determination of brightness shall be 457.0 ± 0.5 millimicrons (mμ). The effective wavelength is that wavelength of monochromatic light for which the transmittance of a filter having spectral transmittance given by $T = a + b\lambda$ is equal to that determined with the master instrument, after proper account or correction is made for effects associated with refraction and reflection, angular spread of rays through the filter photometric error, and wavelength error in the spectrophotometer employed to determine the spectral transmittance. In the foregoing equation, which need hold only for that wavelength range encompassed by the brightness filter, $T$ is transmittance, $a$ and $b$ are constants, and $\lambda$ is wavelength. The effective wavelength of the master instrument shall be determined by the method associated with the foregoing definition (*see* Additional Information 1). If the filter having a linear spectral transmittance consists of a film or plate, its transmittance shall be measured relative to a clear, nonabsorbing film or plate of equal thickness and similar index of refraction; if it be a liquid filter, the transmittance shall be measured relative to a clear, nonabsorbing liquid filter comprised of an identical filter cell containing the pure solvent used for the solution in the absorbing liquid filter. The spectral transmittance shall be so measured in both the master instrument and the spectrophotometer, and the cells shall be so disposed with respect to apertures as to minimize error due to scattering of light in the filters and to make such error as may be due to light scattering the same in the master instrument and the spectrophotometer (*see* Additional Information 2).

*(b)* The area under the curve, which represents the product for all wavelengths greater than 700 mμ of the spectral sensitivity of the photoelectric cell and the spectral transmittance of all filters between the sample aperture and the photoelectric cell, shall be so small compared with the similar area for the wavelength range 360 to 510 mμ that no detectable part of the photoelectric current may be ascribed to infrared fluorescent light arising in the test specimen (*see* Additional Information 3).

*(c)* The spectral energy distribution of the light incident upon the test specimen shall be of such nature that (1) the rate of absorption of energy in the test specimen shall be insufficient to cause an appreciable elevation of temperature, and (2) the intensity of ultraviolet light shall be insufficient to modify the reflectivity of the test specimen through photochemical reaction during the course of measurement.

*(d)* The effective wavelength, 457.0 ± 0.5 mμ; shall be arrived at by the combination of (1) lamp, glass optics and filters, for which the mathematical product of relative spectral energy distribution and spectral transmission is $F(\lambda)$; and (2) a photoelectric cell chosen to make the effective wavelength 457.0 ± 0.5 mμ, and where $F(\lambda)$ is that function of wavelength given in Table I.

TABLE I.—PRODUCT OF RELATIVE SPECTRAL ENERGY DISTRIBUTION, SPECTRAL TRANSMISSION OF GLASS OPTICS AND SPECTRAL TRANSMISSIONS OF ALL FILTERS

| Wavelength, mμ | $F(\lambda)$ (arbitrary units) | Wavelength, mμ | $F(\lambda)$ (arbitrary units) |
|---|---|---|---|
| 360 | 0.0 | 440 | 58.6 |
| 370 | 0.1 | 450 | 90.5 |
| 380 | 0.8 | 460 | 99.8 |
| 390 | 1.9 | 470 | 83.5 |
| 400 | 4.4 | 480 | 52.0 |
| 410 | 8.3 | 490 | 23.1 |
| 420 | 16.2 | 500 | 8.0 |
| 430 | 32.1 | 510 | 0.0 |

*Note:* The foregoing may be illustrated with information regarding the master instrument with which the existing scale of brightness has been established. The function $F(\lambda)$ is the product of the relative spectral energy distribution of the light from a concentrated filament lamp operated at a color temperature of 3100 deg. K; the spectral transmission of four aspheric lenses (two between light source and sample aperture and two between sample aperture and photoelectric cell); the spectral transmission of a filter cell containing a 1-cm. thickness of a 10% copper sulphate solution containing 1% conc. sulphuric acid (placed between light source and sample aperture to remove heat from incident rays); the spectral transmission of a particular Wratten 49 filter, the measured spectral transmission of which has arbitrarily been taken as standard (this filter between sample aperture and photoelectric cell; and the spectral

transmission of a Jena BG-18, melt S1152, filter ground to a thickness of 0.020 in., which is placed between the sample aperture and the photoelectric cell to remove any infrared fluorescent light arising in the test specimen.

The photoelectric cell used shall be regarded as satisfactory if, and only if, its use results in the instrument having the proper effective wavelength, as determined by the method given in *(a)* above.

The permissible range of variation from the values given in Table I shall be that corresponding to the wavelength range, ± 1.5 mμ; independently of this restriction upon $F(\lambda)$, the effective wavelength shall be maintained between 456.5 and 457.5 mμ.

*(e)* The minimum value of the spectral sensitivity of the photoelectric cell or combination of filter and photoelectric cell in the range 400 to 500 mμ shall be not less than one third the maximum value in that range. This restriction precludes the use of a combination of filter and photoelectric cell or photoelectric cell alone which gives rise to proper effective wavelength, but is responsive to a wavelength range less than that encompassed by the data of Table I. Preferably the spectral sensitivity curve shall be free of strong curvature in the range 400 to 500 mμ.

2. Geometrical Characteristics.

*(a)* The mean angle of incidence of rays upon the test specimen shall be 45 ± 1 deg.

*(b)* The incident rays upon a point of the test specimen shall be confined within a cone having a half angle of 11.5 ± 2 deg. This cone shall be filled with light, have its vertex in the sample aperture, and base at the emergent aperture of the condensing lenses.

*(c)* The sample aperture shall be circular and have a diameter of between 0.460 and 0.500 inch; however, the exit aperture of the optical system which accepts reflected rays for measurement shall be coincident with the image of the disk concentric and coplanar with the sample aperture, and have a diameter of 0.375 ± 0.02 inch, so that light reflected from the rim of the sample aperture shall not arrive at the photoelectric cell.

*(d)* The mean angle of rays reflected by the test specimen and accepted by the receiving optical system for measurement shall be between 0 and 1 deg. with the normal to the plane of the sample aperture.

*(e)* The accepted reflected rays shall be confined within a cone having a half angle of 22.5 ± 2 deg.

3. Photometrical Characteristics.

*(a)* A null photometric method shall be employed. Light intensity shall be regulated by means of a sector diaphragm, in the following manner: With the test specimen over the sample aperture, the sectors of the photometer shall be opened to the angle corresponding to the reflectance of the standard, and the photoelectric current shall be noted; then, with the standard over the sample aperture, the sectors shall be so adjusted that the photoelectric current returns to the previously noted value, and the reflectance of the sample shall be read from the reflectance scale.

*(b)* The sector diaphragm shall be placed between the pair of lenses of the receiving optical system with its center on the optic axis, and shall be comprised of (1) a pair of sectors in a fixed plate, each bounded by radii separated by 93 deg. and circles of radii respectively 0.188 and 1.125 inches, each radius being constant to within ±0.001 inch, the two members of the pair being separated by 180 deg. and centered upon a line which is perpendicular to the plane containing the axes of the incident and reflected rays of light; and (2) a rotatable pair of sectors, geared to a reflectance dial, each sector bounded by radii separated by 90 deg. and circles of radii respectively 0.188 ± 0.001 inch and approximately 1.2 inch, the two members of the pair being separated by 180 deg., and the nature of the gear train being such that, when the reflectance dial is set at 100, the openings formed by the two pairs of sectors are each approximately 83 deg., and, when the reflectance dial is set at zero, the openings are 0.0 ± 0.1 deg.

*(c)* The defining edges of the sector diaphragm shall be thin and so beveled and blackened as to be non-reflecting. The plane of the sharp edges of the fixed sectors shall be in contact with that of the rotatable sectors, and the two pairs of sectors shall be concentric to within 0.001 inch.

*(d)* The reflectance dial and the train of gears linking this dial with the sector diaphragm shall be of such accuracy that the total area of opening of the sector diaphragm shall be directly proportional to the dial reading to within 0.1% of the full opening.

4. Calibration of Working Standards for Use with Master Instrument

The ultimate standard of reflectance, magnesium oxide (MgO), shall be prepared in accordance with National Bureau of Standards *Letter Circular* No. L.C. 547, "Preparation and Colorimetric Properties of a Magnesium Oxide Reflectance Standard" with the following added details. Split a block of magnesium carbonate in two, and with a clean straight edge, scrape an inner surface so as to render it plane. For smoking the surface use C.P. magnesium ribbon cut in lengths of about 9 inches. Before burning, clean the surface of the ribbon thoroughly with emery or send paper; then rub with a clean cloth. Preferably working under a hood, ignite the end of a length of the ribbon with a Bunsen burner. (The operator should wear a pair of goggles equipped with dark glass to protect the eyes from the harmful effects of the ultraviolet light emitted by the burning ribbon.) Hold the surface of the magnesium carbonate block to be coated in the stream of smoke rising from the flame, at a distance not less than 3½ inches above the tip of the flame. Burn enough ribbon so that a layer of MgO at least 0.5 mm. thick is deposited upon the block. Prepare at least six such blocks.

In turn place each block over the sample aperture of the master instrument upon shims which have been previously placed in position to hold the blocks so that the easily compressed layer of MgO will only just touch the surface. This may be judged by sighting beneath the MgO block. If shims are not used, a small disk of the MgO will be extruded into the sample opening, and an erroneously high instrumental reading will result. Compare the reflectance of each of the prepared surfaces with each other and discard any obviously inferior surfaces. Measure the reflectances of a master working standard, by assigning a reflectance of 100.0% to each MgO surface, and average the results to arrive at the assigned reflectance of the master working standard. Repeat this procedure for at least fifteen different master working standards, eight of which exhibit a reasonably flat spectral reflectance curve, and seven of which are buff colored (having spectral reflectances somewhat similar to that of typical pulps).

### Appendix B—Calibration Service

The central laboratory to which is delegated the responsibility of maintaining and operating the master instrument will, upon arrangement, distribute secondary standards for the calibration service. A set of secondary standards usually will comprise at least five pads of paper tabs and two working standards of brightness accurately established by measurement on the master instrument.

The paper standards will cover a range from about 60 to 85% brightness. The paper from which these standards are prepared will have the following properties: (1) its brightness shall not change over a reasonable period of time; (2) it shall be white; (3) it shall be clean; (4) it shall be uniform in brightness; and (5) it shall have a relatively smooth surface but shall not be supercalendered.

The working standards will satisfy the following requirements: (1) the surface shall not deviate from a true plane by more than 0.0015 inch in a central circle of diameter ⅝ inch and shall not be concave; (2) the nature of the surface polish and hardness, and the optical stability of the material shall be such that the brightness during one month of intensive but careful use shall not vary more than 0.3 point; (3) the nature of the surface and of the material shall be such that the standards may be easily and effectively cleansed, and sufficiently resistant to withstand several cleanings per day; and (4) the color of the working standards shall be white or cream, but the maximum spectral reflectivity shall not be more than twice the minimum in the wavelength range, 400 to 500 mμ.

The standards for calibration of instruments which have spectral, geometrical or photometrical characteristics differing from those of the master instrument require special consideration. They will comprise only paper standards similar to those described above except for a possible difference in size, and the standard scale of brightness shall be transferred to such an instrument only through the use of such paper standards. The readings from such an instrument and the master instrument may not agree for both the paper and working standards because of differences between these standards in translucency, surface, spectral or other characteristics. For this reason special working standards for such an instrument shall be evaluated by that instrument in terms of the brightness values assigned by the master instrument to paper standards only. The following requirements also shall be satisfied: After having evaluated the average reflectance of any such special working standard by means of the several paper standards, the individual reflectance readings for the special working standard shall not deviate from the average reflectance by more than 0.3 point.

A set of calibrated paper and working standards will be distributed at monthly intervals. Upon their receipt the working standards in use shall be returned to the central laboratory for restandardization.

### Additional Information

1. A solution in a filter cell having a linear spectral transmittance over the range 400 to 500 mμ may conveniently comprise a dilution in distilled water of "Coca-Cola" which has been warmed to remove the dissolved gases, the concentration being in the neighborhood of about 40% Coca-Cola and 60% distilled water, the exact concentration being arrived at by test of linearity of the spectral transmittance. The spectral transmittance must be measured relative to an exactly similar filter cell containing distilled water.

2. In the master instrument the filter cells are placed just above the aperture which admits light to the photoelectric cell, so that the ratio of diameter of aperture to distance between the filter cell and aperture is not small. When the filter cells are placed in the spectrophotometer, they are so positioned that a similar ratio of aperture diameter to filter cell-aperture distance obtains.

3. "Instrumentation Studies. XIII," *Paper Trade J.* 104, no. 18:47-53; no. 19:51-63; no. 20:45-49 (May 6, 13, 20, 1937).

4. For "Brightness of Paper" *see* TAPPI Suggested Method T 452 m.

## Building Insulation

The American Technical Society has recently published a 325 page book on Building Insulation, A Treatise on the Principles and Application of Heat and Sound Insulation for Buildings by Paul D. Close, Technical Secretary of the Insulation Board Institute and formerly instructor at the Polytechnic Institute of Brooklyn.

It is written in a manner to be useful to the architect, engineer, manufacturer and consumer. Although it deals primarily with dwellings the principles apply to certain types of industrial plants.

A sincere attempt is made to avoid discrimination, to treat all products fairly and without bias and to state the facts as known. Data regarding known insulating materials are given in the appendix.

Among the interesting chapters are the following: Thermal building insulations; methods of application; fundamentals of heat transfer; heat loss calculations; fuel savings and economies; roof expansion; condensation; sound insulation; pipe and duct insulation.

Copies may be obtained at $3.00 per copy from the American Technical Institute, Drexal Avenue at 58th street, Chicago, Ill.

## Constant Temperature Ovens

The new improved Aminco ovens, manufactured by the American Instrument Company, 8010-8020 Georgia avenue, Washington, D. C., are designed to provide a scientific method of heating and circulating the air.

Among the leading features of Aminco ovens is the close control, temperature being maintained within 0.5 C. or better. This is secured by the time-tested Aminco Quickset Bimetallic Thermoregulator. It controls a 24-volt circuit and actuates a reliable enclosed mercury tube relay to make and break the heater circuit.

The ovens are of rugged construction, with insulated double-walls. The continuous-duty motor is mounted in a separate insulated compartment.

Four model Aminco ovens are available, in one and two door types, ranging in size from 13 x 13 x 13 in. up to 37 x 25 x 37 in. All are fitted with two shelves. Wattages range from 1500 in the smallest size oven, up to 4000 watts in the largest. Other types of constant temperature equipment are described in the company's new No. 41 catalogue.

## Southern California Papermakers Meet

The Papermakers and Associates of Southern California held their December 11th dinner meeting in Los Angeles at Scully's Restaurant. Due to the possibility of a blackout that evening, the attendance was only 44—somewhat lower than usual. However, the enthusiasm and interest of those prosent, as well as the fine program, was fully equal to any other meeting P.A.S.C. has held.

At 6:30 the National Anthem was played while all stood at attention. Then while the first course of a very excellent dinner was being served, the drawing was held for the door prize, consisting of a pen and pencil set. The winning ticket was held by Walter Burroughs of the Prisma Products Company.

After dinner, the meeting was opened by Chairman Joachim with a few words regarding the war effort and the part those in the paper and paperboard industry must play. Chairman Joachim announced a total membership of eight-seven and introduced seven new members and several guests.

Robert Eminger, Secretary of the American Pulp & Paper Mill Superintendents Association, was introduced and spoke a few words regarding the Superintendents' Association and his work with it during the last seventeen years.

J. L. Milch, an unexpected guest was introduced by Richard Pomeroy. Mr. Milch in the paperboard business in Shanghai, China for the past 20 years, was asked to say a few words regarding paper making in that country. In reply, Mr. Milch stated that he did not believe P.A.S.C. members could profit much by his description of paper making methods in China, but that he expected to learn much regarding paper making in the United States. To prove his point Mr. Milch described some of the crude methods of making paper by hand still in use in China.

The first scheduled speaker on the program, which was in charge of Richard Buckley as program chairman for the evening, was Louis Spaeth, of the Better Business Bureau, whose subject was "Fashions in Frauds." Mr. Spaeth mentioned various "rackets" and how they were operated and also described some of the basic reasons for the existance of fraud.

Ed Root of the Dilts Machine Works, main speaker of the evening, spoke on stock preparation. In opening, Mr. Root stated that the Dilts Hydrapulper had been introduced about two years ago to fill a long felt need for better ways to make paper and paperboard. A number of slides were shown, with explanations and comments by Mr. Root, illustrating the uses and operation of stock preparation systems, utilizing the Dilts Hydrapulper, Hydrafiner, Cowles Classifier, Murphy junk removers and vertical stock chests. An extensive question and answer period followed.

In closing the meeting, Chairman Joachim announced that an Educational Committee had been formed, composed of A. O. Beckman, chairman, Frank Wheelock and Robert Baum, members.

Among those who attended the meeting were:

Floyd W. Adams, Willard G. Axtell, Robert A. Baum, William Belleman, Bruce Brown, Sr., Bruce Brown, Jr., Richard S. Buckley, Walter Burroughs, Max E. Campbell, Robert E. Cooper, Roy L. Culp, Frank E. Dilley, Ernest Dutcher, George E. Eberhard, Robert Eminger, E. Eilersgaard, Grant Farmer, Wilbur Foote, J. Walter Genuit, A. H. Hatch, J. M. Henshaw, Herman L. Joachim, Jack Johns, M. W. MacAfee, Parke F. Math, Francis Mark, J. L. Milch, Richard D. Pomeroy, Robert Petrie, Tom Rhodes, Ed Root, Foster Rucker, Otto Sass, Archie Schwartz, John Stanko, Louis Spaeth, W. T. Tillotson, Elmer Toliver, John Van Ounsem, Herbert Vernet, Bruce Wallace, Frank Wheelock, Homer White, and George Zenick.

## C. P. P. A. Technical Section Program

The Technical Section of the Canadian Pulp and Paper Association will meet at the Mount Royal Hotel, Montreal, P. Q., on January 28-30, 1942.

MEETING OF JANUARY 28

Session A—9:30 A.M.

1. Slime Control in a Modern Newsprint Mill by Norman S. Grant, Great Lakes Paper Company.
2. Colorimetry of Pulp and Paper with Special Reference to Brightness and Whiteness by Deane B. Judd, U. S. Bureau of Standards.
3. A Stock Preparation System by Frank S. MacDonald, J. R. Booth, Ltd.

Session B—9:30 A.M.

1. Engineering Mechanical Devices, Ottawa Subcommittee Engineering Committee.
2. Report on Cable Conveyors—Report of Wood Handling Subcommittee.

Technical Section Business Luncheon—1:00 P.M.

General Session—3:00 P.M.

1. A Newspaperman Looks at Newsprint by W. E. Wines, American Newspaper Publishers Association.
2. Controlling Manufacturing Costs by A. F. Gurr. Consolidated Paper Corporation, Ltd.

MEETING OF JANUARY 29

Session A—9:00 A.M.

1. Studies in Classification and Refinement of Groundwood Pulp by J. D. Brown, Canadian International Paper Company.
2. Groundwood at 5400 S.F. per Minute by J. B. Jones, Ontario Paper Company and W. W. Holland, Quebec North Shore Paper Company.
3. A Rapid Determination of Freeness in the Grinder Room by E. Cowan, Lake St. John Power and Paper Company.
4. Composite Report of Three Groundwood Studies.
   a. Screen Plate Comparison Performance by I. H. Andrews, Powell River Company, Ltd.
   b. High Pressure Front Shower Grinder Operation on Hydraulic Grinders by J. D. Brown, Canadian International Paper Company.
   c. The Effect of Brooming on Groundwood Rejects by J. Edwards, Price Bros. & Company, Ltd.

Session B—9:00 A.M.

1. Mechanical Aspects of Pulp Bleaching by V. Ullman, Paper Machinery, Ltd.
2. Some Observations of the Effect of Wood Stain on Pulp Cleanliness by L. J. Rioux and J. Barsalou, Fraser Companies, Ltd.
3. Waste in Pulp Manufacture by W. H. Birchard, Fraser Companies, Ltd.

Group Discussion—Thursday P.M. and Friday.

Newsprint, Sulphite, Groundwood, Kraft, Board, Engineering, Pulp Evaluation, Heat and Power, Physical and Chemical Standards, Fine Papers, Education, Wood Chemistry and Waste.

Annual Luncheon and Medal Awards—Friday.

# Imports of Paper and Paper Making Stock

## Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard; Bleached Sulphite More Acute—Some Grades of Old Waste Lower.

**Importers may have their shipments listed in these columns by submitting records of imports to this publication.**

### NEW YORK IMPORTS

WEEK ENDING DECEMBER 20, 1941

SUMMARY

Newsprint .....1,539 pkgs., 13,488 rolls

NEWSPRINT

———, ———, ———, 3,087 rolls.
The Bate Co., ———, ———, 367 rolls.
Perkins Goodwin & Co., ———, ———, 1,278 rolls.
N. Y. Evening Journal, ———, ———, 3 rolls.
National City Bank, ———, ———, 803 pkgs.
S. B. Behrens Co., ———, ———, 736 pkgs.
Price & Pierce, Ltd., ———, ———, 19 rolls.
———, ———, ———, 1,147 rolls.
———, ———, ———, 7,587 rolls.

RAGS, BAGGINGS, ETC.

Waldemar Fernandez Luio, ———, ———, 86 bls. cotton linters, 28 bls. cotton waste bagging.
Schimmel Trading Corp., ———, ———, 72 bls. cotton linters.
Kauders Steuber Co., ———, ———, 78 bls. cotton residues, 251 bls. cotton waste.
J. E. Brooks Cotton Co., ———, ———, 834 bls. cotton linters, 48 bls. cotton waste, 136 bls. flax waste.
———, ———, ———, 125 bls. cotton linters.
———, ———, ———, 280 bls. cotton linters.
A. W. Fenton Co., ———, ———, 40 bls. new cuttings.
———, ———, ———, 300 bls. cellulose.
S. Godfrey, Ltd., ———, ———, 50 bls. rags.
———, ———, ———, 49 bls. flax waste.
———, ———, ———, 1,280 bls. cotton linters.
Williamson Products Co., ———, ———, 123 bls. cotton linters.
Schimmel Trading Corp., ———, ———, 43 bls. cotton residues.
Prague Credit Bank, ———, ———, 44 bls. cotton waste.
Philadelphia National Bank, ———, ———, 86 bls. cotton linters.
———, ———, ———, 50 bls. cotton linters.

OLD ROPE

D. M. Hicks, Inc., ———, ———, 424 bls. old hemp rope, 86 bls. old hemp strings, 52 bls. old hemp cloth cuttings.
R. L. Pritchard & Co., ———, ———, 130 bls. old hemp rope cuttings.

GLUESTOCK, ETC.

H. Remis & Co., ———, ———, 321 bls. glue stock.
C. B. Hewitt & Bros., ———, ———, 100 bags bone glue, 5,050 kilos.
Biological Raw Products, ———, ———, 30 bags bone glue, 1,524 kilos.
Darmstadt Scott & Courtney, ———, ———, 100 bags bone glue (sheets).
H. Feuermann, ———, ———, 42 bags glue.
Trans Atlantic By-Products Corp., ———, ———, 100 bags glue.
———, ———, ———, 132 bags ground skin glue.

CASEIN

National City Bank, ———, ———, 834 bags.
C. W. Burckhalter, Inc., ———, ———, 417 bags.
H. S. Cramer & Co., Inc., ———, ———, 2,084 bags (ground lactic).
American British Chemical Supplies, ———, ———, 834 bags.
A. Hurst & Co., Inc., ———, ———, 417 bags (ground).
J. H. Schroeder Banking Corp., ———, ———, 417 bags (ground).
H. S. Cramer & Co., Inc., ———, ———, 2,134 bags.
National City Bank, ———, ———, 219 bags 15000 kilos.
Wessel Duval & Co., ———, ———, 34 bags, 2,040 kilos.
H. S. Cramer & Co., Inc., ———, ———, 434 bags, 26,040 kilos.
A. Hurst & Co., Inc., ———, ———, 417 bags (ground) 25,020 kilos.

WOOD PULP

Cellulose Sales Co., ———, ———, 3,678 bls. sulphite, 518 tons.
L. Hershman & Co., ———, ———, 3,275 bls. sulphite, 419 tons.

## To Reclaim Waste Paper

"This community has watched with interest throughout the past year the entire transformation of the old National Tire & Rubber Company's plant into a new design of construction, now styled the T. & H. Enterprises," says the *Leader* of East Palestine, Ohio.

"The sole owners of this new company are Joseph Trees of Pittsburgh, member of the Benedum-Trees firm, whose developments in the oil fields are outstanding all over the world, and F. W. Hochstetter, also of Pittsburgh, who for about 20 years has been identified with Mr. Trees, who has and is now sponsoring him in his various inventions, including this local project.

"In the Pittsburgh area, Mr. Hochstetter is widely recognized as an inventor, and versed as well in all the applied sciences.

"In thus completely revamping the building, and in the necessary mechanical installations that have already been made, the T. & H. Enterprises has already spent over $350,000 towards the production of pulp.

"The manufacture of pulp from waste paper is already under way with most gratifying results.

"A pay roll of $1000 a week, all to local employees, and a power bill of over $1,000 for November, gives one a faint idea of the possibilities ahead, when one considers that the plant is just now really commencing operation.

"The owners of this enterprise had long been impressed by the fact that some 8 or 10 million tons of waste paper was annually being put to no use, and at the same time the supply of virgin pulp in the Canadian forest and in the deep South, was gradually being exhausted.

"Long years of research and experimentation on the part of Mr. Hochstetter finally developed the process that now covers every kind of waste paper into pulp, which the paper manufacturers can use to make any kind of paper from newsprint, up to ledger and kraft."

## Lieut. Col. Patterson Reports for Duty

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 22, 1941—The officers and directors of the Graphic Arts Institute of Massachusetts, Inc., announce that Howard S. Patterson, secretary-manager, has been into the United States Army for one year of service, beginning December 8, 1941. Mr. Patterson, who has been secretary-manager for the last three years, has the rank of Lieutenant Colonel Cavalry.

During his absence, Alcid H. Simmons, will be in charge of the office, but will be under the supervision of Lieutenant Colonel Patterson.

# New York Paper and Pulp Market Review

## Allotment of Chlorine Will Go Into Effect On February 1, 1942, By Order of OPA—Rationing of Pulp Impending—Rag Market Prices Stable — OPA Increases Ceiling Price of No. 1 Mixed Paper.

Office of the PAPER TRADE JOURNAL,
Wednesday, December 24, 1941.

Somewhat more stability in the wholesale paper market is reflected in some reports received from manufacturers, representatives, jobbers, and general paper merchants this week. The heavy demand for leading grades of paper continues to be reported as one of the most difficult problems in the current business situation. Improvement in mill deliveries in a few lines has contributed only slightly to relieve the tight supply situation. Some reports indicate a scarcity in some specialties. The great demand for some major grades, such as kraft wrapping and board, makes it impossible for mills to accept new orders, or to satisfy the rising demands of the trade.

As the peace-time economy of the country is being quite rapidly changed into an all-out war economy, the strict rationing of chemical woodpulp is expected to be inaugerated as an essential measure for the adequate supply of the most essential kinds of paper. Thus pooling of all the production of all domestic pulp mills and undoubtedly the output of Canada also, will be put into effect at as early a date as practicable. This will mean that the Director of Priorities of the Office of Production Management, will determine what grades of paper and paper products converted from the raw paper, are most essential to a country engaged in a war to preserve the nation's freedom.

A survey of the entire woodpulp and paper industry will shortly be undertaken by the Office of Production Management. Pulp producers will be requested to report data on all grades of pulp, receipts, production, shipments and consumption figures for 1940, the first three quarters of 1941 and inventories at the close of those periods. Paper mills will be asked for production data on all grades of paper during the first three quarters of 1941. It is understood that this data will be tabulated by the Department of the Census, kept confidential and to be used by only the Federal Defense Agencies.

The index of general business activity for the week ended December 13 rose to 133.3%, from 132.7% for the preceding week, compared with 121.3% for the corresponding week last year. Paper board production declined 4.0%.

Paper production for the week ended December 13 was estimated at 105.7%, compared with 88.3% for 1940, with 97.2% for 1939, with 81.3% for 1938, and with 60.0% for the corresponding week for 1937.

Paper board production for the week ended December 13 was 101.0%, compared with 90.0% for 1940, with 79.0% for 1939, with 65.0% for 1938, and with 51.0% for the corresponding week for 1937.

The price situation is well stabilized. No important changes from prevailing representative quoted market prices have been reported this week.

### Chemical Pulp

A tight market situation prevails in prime grades of chemical woodpulp. The Director of Priorities has announced that the supply of chlorine will be placed on a strictly allotment basis on February 1, 1942. Prices on leading grades of pulp are stabilized by voluntary agreement effected some weeks ago by producers and the OPM.

### Rags

The rag market is well stabilized. No ceiling prices have been placed on new rags, as on old rags, but the trade is endeavoring to voluntarily regulate trading to check any possible undue rise in prices. No important changes from current prevailing quotations have been reported this week.

### Old Rope and Bagging

Old rope prices are well maintained, with no important changes reported at this date.

The price situation in old bagging is confused. Mill buying is reported active at this date, with some dealers reporting difficulty in obtaining even normal supplies.

### Old Waste Paper

Some important price changes in waste paper have been announced by the OPA. The "super-mixed" grade has been discarded and No. 1 mixed paper has been raised to .70.

### Twine

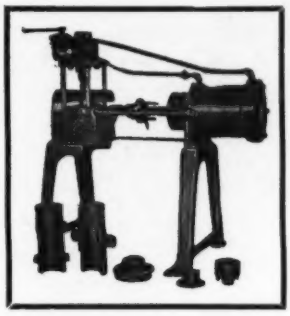
A record-breaking volume of Christmas orders is reported in the twine market. Imported fibers must soon be scarce, with shortages becoming acute, as the war in the Pacific expands. A more general substitution of cotton fibers, is expected in the trade. Prices are firm under a strong demand for all leading grades of hard and soft fiber twines.

## Buy Mill at Marcellus Falls

Isadore Baum, president of the Ashland Paper Mills, Inc., Ashland, N. H., has purchased through the Gibbs-Brower Company, Inc., paper and pulp mill brokers, 21 East 40th street, New York, the paper mill known as the lower paper mill of the Onondaga Paper Company, Marcellus Falls, N. Y. Isadore Baum will be president of the new company which will be known as Marcellus Falls Paper Mills, and his son, Seymour Baum, who graduated a few years ago from New York University, will be vice president.

A few years ago, the Baums bought the former International Paper Company mill at Ashland, N. H. They have spent considerable money on this plant and it is now a thoroughly up to date mill producing twenty tons per twenty-four hours of napkin, toilet and paper towel stock. These same grades will be produced at the new plant of the company at Marcellus Falls. Considerable money will be spent in improving this plant and putting it in operation at the earliest possible moment.

The Baums are at the present time negotiating with the Gibbs-Brower Company, Inc. for the purchase of another mill in the East.



# Core Cap Remover

*U. S. Patent No. 1692274*

**A simple and efficient machine for removing metal caps from paper cores. Compressed air is used and operation is controlled by a single valve. Additional die equipment is available to recondition caps after removal.**

***Bulletin will be sent on request***

## Montague Machine Company

**Turners Falls, Mass.**

# APPLETON WIRES ARE GOOD WIRES

APPLETON WIRE WORKS, Inc., Appleton, Wisconsin

# MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, December 24, 1941.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b. works. Demand reported good for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported active for the week. Bleaching powder is currently quoted at $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are firm, under a good demand for the current week. Standard domestic casein, 30-30 mesh, is currently quoted at 31 cents per pound; 80-100 mesh, at 31½ cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 27 cents per pound. No quotations in French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Demand reported heavy. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, car lots, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported moderate at this date. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Government demand heavier. Market under mandatory priority ruling. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with prices higher on some grades. "G" gum rosin is currently quoted at $2.98 per 100 pounds, in barrels. Savannah "FF" wood rosin is currently quoted at $3.02 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $3.33 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand active for the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16 per ton imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to confrm to prevailing market levels. Demand reported heavy for the week. Prices on soda ash in car lots, per 100 pounds, are as follows; in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and are reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported active for the current week. The commercial grades are currently quoted at $1.15; iron free at $1.85 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

# MARKET QUOTATIONS

## Paper

**(Delivered New York)**

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Roll, contract | $50.00 | @ | — |
| Sheets | 58.00 | " | — |
| **Kraft—per cwt.—Delivered Zone A** | | | |
| Northern, Extra Quality | $5.25 | @ | $6.00 |
| Superstandard | 4.87½ | " | 5.25 |
| Northern Standard Wrapping | 4.50 | " | 5.00 |
| Standard Wrapping | 4.50 | " | — |
| **Tissues—Per Ream—Carlots** | | | |
| White No. 1 | 1.12½ | " | — |
| White No. 1 M. G. | 1.05 | " | — |
| White No. 1½ | 1.00 | " | — |
| White No. 2 | 1.00 | " | — |
| Anti-Tarnish M. G. | .95 | " | — |
| Colored | — | " | — |
| Kraft | .95 | " | — |
| Manila | .90 | " | — |
| Unbl. Toilet, 1 M. | 4.16 | " | — |
| Bleached Toilet | 5.70 | " | — |
| **Paper Towels—Per Case** | | | |
| Unbleached, Jr. | 2.35 | " | — |
| Bleached, Jr. | 2.65 | " | — |
| **Manila—per cwt.—L. c. l.** | | | |
| No. 1 Jute | 8.75 | @ | 10.75 |
| No. 1 Manila Wrapping, 35 lb. | 5.50 | " | 5.75 |
| No. 2 Manila Wrapping, 35 lb. | 5.25 | " | 5.50 |
| **Boards, per ton—** | | | |
| News | *45.00 | @ | — |
| Chip | *45.00 | " | — |
| Sgl. Mla. Lt. Chip | *60.00 | " | — |
| White Pat. Coated | *75.00 | " | — |
| Kraft Liners 50 lb. | *60.00 | " | — |
| Binders Boards | *80.00 | " | — |

* OPA Maximum Prices.

The following are representative of distributors' resale prices:

**Rag Content Bonds and Ledgers—**
White, Assorted Items,
Delivered in Zone 1:

| | Bonds | Ledgers |
|---|---|---|
| 100% Rag Ext. No. 1 | $40.25@$47.25 | $41.40@$48.50 |
| 100% Rag | 32.20 " 37.75 | 33.35 " 39.25 |
| 85% Rag | .... " .... | 32.20 " 37.75 |
| 75% Rag | 24.75 " 29.00 | 25.90 " 30.50 |
| 65% Rag | .... " .... | 22.80 " 27.75 |
| 50% Rag | 18.70 " 22.75 | 19.90 " 24.25 |
| 25% Rag | 16.40 " 20.00 | 17.55 " 21.50 |

Colors at $1.00 cwt. extra.

**Sulphite Bonds and Ledgers—**
White, Assorted Items.
Delivered in Zone 1:

| | Bonds | Ledgers |
|---|---|---|
| No. 1 | $10.55@$12.75 | $11.70@$14.25 |
| No. 2 | 9.65 " 11.75 | 10.80 " 13.25 |
| No. 3 | 9.20 " 11.25 | 10.35 " 12.50 |
| No. 4 | 8.90 " 10.75 | 10.05 " 12.25 |

Colors $1.00 cwt. extra.

**Free Sheet Book Papers—**
White, Cased Paper.

Delivered in Zone 1:

| | |
|---|---|
| No. 1 Glossy Coated | $13.65@$15.50 |
| No. 2 Glossy Coated | 12.40 " 14.00 |
| No. 3 Glossy Coated | 11.60 " 13.25 |
| No. 4 Glossy Coated | 11.15 " 12.75 |
| No. 1 Antique (watermarked) | 10.25 " 11.75 |
| No. 2 Offset | 9.60 " 11.00 |
| A Grade E. F. | 9.35 " 10.75 |
| A Grade S. & S. C. | 9.60 " 11.00 |
| B Grade E. F. | 8.85 " 10.25 |
| B Grade S. & S. C. | 9.10 " 10.50 |
| C Grade E. F. | 8.55 " 9.75 |
| C Grade S. & S. C. | 8.80 " 10.00 |
| D Grade E. F. | 8.25 " 9.50 |
| D Grade S. & S. C. | 8.50 " 9.75 |

Ivory & India at $.50 cwt. extra.

## Mechanical Pulp

**On Dock, Atlantic Ports**

| | | | |
|---|---|---|---|
| No. 1 Imported— | | | |
| Moist | No prices | | |
| Dry | No prices | | |
| **(Delivered)** | | | |
| No. 1 Domestic and Canadian | 40.00 | @ | 45.00 |

## Chemical Pulp

**(On Dock, Atlantic, Gulf and W. Coast Ports)**

| | | | |
|---|---|---|---|
| Bleached Sulphite (Domestic and Foreign)— | | | |
| Prime Bleached Sulphite | 3.62½ | @ | 4.75 |
| Prime Qualities— | | | |
| Easy-Bleaching Sulphite | 3.17½ | " | 4.25 |
| Strong Unbleached Sulphite | 3.17½ | " | 4.25 |
| News Grade, delivered | | | |
| Unbleached Sulphite | 63.75 | " | 67.75 |

**(On Dock, Atlantic Ports**

| | | | |
|---|---|---|---|
| Kraft Bleached | 4.12½ | " | — |
| Kraft Light & Strong | No price | | |
| Kraft No. 1 | No prices | | |

**(Delivered)**

| | | | |
|---|---|---|---|
| Kraft Domestic and Canadian | 3.00 | " | 4.00 |
| **(Delivered)** | | | |
| Soda Bleached | 3.30 | " | — |

Add 60 cents per short ton, freight charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits

## Domestic Rags

**New Rags**

**(Prices to Mill f. o. b. N. Y.)**

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1 | 8.00 | @ | 8.25 |
| Silesias No. 1 | 4.50 | " | 4.75 |
| New Unbleached | 8.00 | " | 8.25 |
| Blue Overall | 5.75 | " | 6.00 |
| Fancy | 3.00 | " | 3.25 |
| Washables | 2.50 | " | 2.75 |
| Mixed Khaki Cuttings | 2.50 | " | 2.75 |
| O. D. Khaki Cutings | 3.00 | " | 3.15 |

**Old Rags**

| | | | |
|---|---|---|---|
| White, No. 1— | | | |
| Repacked | *3.80 | " | — |
| Miscellaneous | *3.20 | " | — |
| White, No. 2— | | | |
| Repacked | *2.90 | " | — |
| Miscellaneous | *2.90 | " | — |
| Third and Blues— | | | |
| Repacked | *2.20 | " | — |
| Miscellaneous | *1.80 | " | — |
| Roofing Rags— | | | |
| No. 1 | *1.50 | " | — |
| No. 2 | *1.45 | " | — |
| No. 3 (bagging) | *1.35 | " | — |
| No. 4 | *1.35 | " | — |
| No. 5A | *1.35 | " | — |

*OPA Maximum Prices.

## Foreign Rags

**All prices nominal**

**New Rags**

| | | | |
|---|---|---|---|
| New Dark Cuttings | 2.25 | @ | 2.40 |
| New Mixed Cuttings | 2.00 | " | 2.20 |
| New Light Silesias | 5.50 | " | 5.75 |
| Light Flannelettes | 5.50 | " | 5.75 |
| New White Cuttings | 7.00 | " | 7.50 |
| New Light Oxfords | 4.00 | " | 4.50 |
| New Light Prints | 3.00 | " | 3.25 |

**Old Rags**

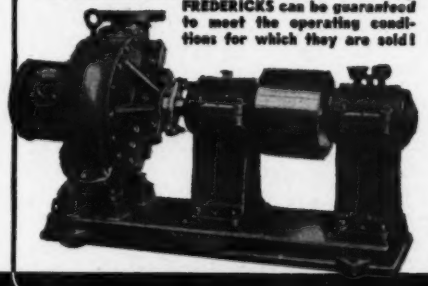
| | | | |
|---|---|---|---|
| No. 1 White Linens | 7.50 | " | 8.50 |
| No. 2 White Linens | 6.50 | " | 7.50 |
| No. 3 White Linens | 4.50 | " | — |

*Frederick*

# STOCK PUMPS

EXTRA heavy shafts made of chrome heat-treated steel are carried in long babbitted sleeve bearings arranged for ring oiling . . . Non-clog impeller wheel is specially designed to permit easy flow of heavy stock . . . Patented adjustable liner plates on front and rear sides of the impeller make adjustment or replacement easy . . . Extra long packing box houses; twice the usual number of rows of packing.

These are just a few of the special FREDERICK features you will want to know all about. Write for detailed data . . . no obligation. See why FREDERICKS can be guaranteed to meet the operating conditions for which they are sold!



The FREDERICK IRON & STEEL COMPANY
FREDERICK, MARYLAND

# ZOPAQUE RG

**Pure $TiO_2$**

This grade of $TiO_2$ shows highest developments of aqueous dispersion and suspension yet attained.

**General Preference Order M-44 will govern our distribution of Zopaque beginning January 1, 1942.**

**We solicit the continued cooperation of our customers.**

*Sole Selling Agents:*
The Chemical & Pigment Company
Baltimore, Md. · Collinsville, Ill. · Oakland, Calif.
*Manufactured by*
American Zirconium Corporation
Baltimore, Maryland

UNITED PIGMENTS

*Pure Titanium Dioxide*

# UNITANE-O

**A brilliantly WHITE, pure, fine titanium dioxide possessing excellent . . .**

- **OPACITY**
- **BRIGHTNESS**
- **DISPERSION**

***Suitable for ALL types of paper ranging from thin printing papers and waxing tissues to coated book and magazine stocks.***

**UNITANE O—110 was especially developed for paper pigmentation. Its excellent dispersion in water promotes good retention and excellent sheet formation. As a component of the beater furnish, it produces *whiter* sheets of *great brilliance*, and superior printing qualities.**

***SAMPLES of UNITANE O-110 will be sent promptly upon request.***

UNITED

# UNITED COLOR AND PIGMENT CO.

DIVISION OF INTERCHEMICAL CORPORATION
NEWARK, NEW JERSEY
SALES OFFICES IN PRINCIPAL CITIES

| | | | |
|---|---|---|---|
| No. 4 White Linens. | 2.25 | @ | 3.25 |
| No. 1 White Cotton. | 4.25 | " | 4.75 |
| No. 2 White Cotton. | 3.25 | " | 3.75 |
| No. 3 White Cotton. | 2.50 | " | 3.00 |
| No. 4 White Cotton. | 1.90 | " | 2.20 |
| Extra Light Prints.. | 2.00 | " | 2.40 |
| Ord. Light Prints... | 1.75 | " | 2.15 |
| Med. Light Prints... | 1.55 | " | 1.95 |
| Dutch Blue Cottons. | 2.25 | " | 2.50 |
| French Blue Linens. | 3.00 | " | — |
| Checks and Blues... | 2.00 | " | — |
| Linsey Garments.... | 1.90 | " | 2.00 |
| Dark Cottons..... | 1.50 | " | 1.60 |
| Old Shopperies..... | 1.30 | " | 1.45 |
| New Shopperies..... | 1.45 | " | 1.50 |
| French Blues..... | 2.25 | " | 2.50 |

### Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign ..... | Nominal | | |
| Domestic ..... | 4.00 | @ | 4.25 |
| Wool Tares, light.... | 4.25 | " | 4.50 |
| Wool Tares heavy.. | 4.50 | " | 4.75 |
| Bright Bagging..... | 3.50 | " | 3.75 |
| Manila Rope | | | |
| Foreign ..... | 6.50 | " | 6.75 |
| Domestic ..... | 6.50 | " | 6.75 |
| Jute Threads..... | 4.00 | " | 4.25 |
| Sisal Strings..... | 2.75 | " | 3.00 |
| Mixed Strings..... | 1.10 | " | 1.20 |

### Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

| | | | |
|---|---|---|---|
| No. 1 Hard White Envelope Cuts, one cut ..... | 3.37½ | @ | — |
| No. 1 Hard White Envelope Cuts.... | 3.12½ | " | — |
| No. 1 Hard White Shavings, unruled. | 2.87½ | " | — |
| No. 1 Hard White Shavings, ruled... | 2.50 | " | — |
| Soft White Shavings, one cut..... | 2.87½ | " | — |
| No. 1 Soft White Shavings ..... | 2.50 | " | — |
| Soft White Shavings, Misc. ..... | 2.15 | " | — |
| No. 1 Fly Leaf Shavings ..... | 1.67½ | " | — |
| No. 2 Fly Leaf Shavings ..... | 1.12½ | " | — |
| No. 1 Groundwood Fly Leaf Shavings | 1.25 | " | — |
| No. 2 Mixed Groundwood Fly Leaf Shavings ..... | .90 | " | — |
| Mixed Colored Shavings ..... | .75 | " | — |
| Mixed Groundwood Colored Shavings.. | .90 | " | — |
| Overissue Magazines ..... | 1.67½ | " | — |
| No. 1 Heavy Books & Magazines..... | 1.57 | " | — |
| Mixed Books..... | 1.07½ | " | — |
| No. 1 White Ledger | 2.17½ | " | — |
| No. 2 Mixed Ledger, colored ..... | 1.87½ | " | — |
| New Manila Envelope Cuttings, one cut.. | 2.87½ | " | — |
| New Manila Envelope Cuttings ..... | 2.65 | " | — |
| Extra Manilas..... | 1.85 | " | — |
| Mixed Kraft, Env. & Bag Cuttings ..... | 2.75 | " | — |
| Kraft Envelope Cuttings ..... | 3.25 | " | — |
| Triple Sorted, No. 1 Brown Soft Kraft. | 2.50 | " | — |
| New 100% Kraft Corrugated Cuttings.. | 2.25 | " | — |
| No. 1 Assorted Old Kraft ..... | 1.75 | " | — |
| Old Kraft Corrugated Containers ..... | 1.35 | " | — |
| Jute Corrugated Cuttings ..... | .90 | " | — |
| Old Corrugated Containers ..... | .82½ | " | — |
| Box Board Cuttings. | .72½ | " | — |
| White Blank News.. | 1.65 | " | — |
| Overissue News..... | .85 | " | — |
| No. 1 Baled News.. | .75 | " | — |
| No. 1 Mixed Paper. | .70 | " | — |

### Twines

(F. o. b. Mill)

(Soft Fiber)

| | | | |
|---|---|---|---|
| Coarse Polished— | | | |
| India ..... | .21 | @ | — |
| White Hemp..... | .21 | " | — |
| Fine Polished— | | | |
| Fine India..... | .26 | " | — |
| Unpolished— | | | |
| Box ..... | .17¼ | " | — |
| Paper Makers..... | .17 | " | — |
| Tube Rope..... | .19 | " | — |
| Wall Paper..... | .20½ | " | — |
| Wrapping ..... | .23 | " | — |
| Soft Fiber Rope... | .19 | " | — |
| Cotton ..... | .25 | " | — |
| (Hard Fiber) | | | |
| Medium Java..... | .18 | " | — |
| Mex. Sisal..... | .16 | " | — |
| Manila ..... | .26 | " | — |

## PHILADELPHIA

### Domestic Rags (New)

Price to Mill, f. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White No. 1. | .07¼ | @ | .07½ |
| New White No. 2. | .04½ | " | .05 |
| Light Silesias..... | .04½ | " | .04¾ |
| Silesias, No. 1.... | .04 | " | .04¼ |
| Black Silesias, soft | .03¾ | " | .04 |
| New Unbleached.. | .07¼ | " | .07½ |
| Washable Prints... | .03¾ | " | .03½ |
| Washable No. 1.. | .02 | " | .02¼ |
| Blue Overall..... | .04½ | " | .05½ |
| Cottons—According to grades— | | | |
| Washable shredding | — | " | .01¾ |
| Fancy Percales.... | .03¼ | " | .03½ |
| New Black Soft.... | .02¾ | " | .03 |
| New Dark Seconds | 1.75 | " | 2.00 |
| Khaki Cuttings— | | | |
| No. 1 O. D..... | .03 | " | .03¼ |
| No. 2 Mixed..... | .02¼ | " | .02½ |
| Corduroy ..... | .01¾ | " | .02¼ |
| New Canvas..... | .04¾ | " | .05¼ |
| New Black Mixed. | — | " | .02½ |

### Domestic Rags (Old)

| | | | |
|---|---|---|---|
| White No. 1—Repacked ..... | 3.80 | " | — |
| White No. 2—Repacked ..... | 2.90 | " | — |
| Miscellaneous No. 1. | 3.20 | " | — |
| Miscellaneous No. 2. | 2.65 | " | — |
| Thirds and Blues— | | | |
| Miscellaneous .... | 1.80 | " | — |
| Repacked ..... | 2.20 | " | — |
| Black Stockings— | | | |
| (Export) ..... | Nominal | | |
| Roofing Stock— | | | |
| Foreign No. 1..... | Nominal | | |
| Domestic No. 1... | 1.55 | " | — |
| Domestic No. 2... | 1.45 | " | — |
| Roofing Bagging.. | 1.35 | " | — |

### Bagging

(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Gunny, No. 1— | | | |
| Foreign ..... | Nominal | | |
| Domestic ..... | 3.00 | " | 3.50 |
| Manila Rope..... | 5.00 | " | 5.50 |
| Sisal Rope..... | 3.75 | " | — |
| Mixed Rope..... | .75 | " | 1.00 |
| Scrap— | | | |
| No. 1..... | 3.25 | " | 3.50 |
| No. 2..... | 1.75 | " | 1.80 |
| Wool Tares, heavy... | 4.00 | " | 4.25 |
| No. 1 New Light Burlap ..... | 3.00 | " | 4.00 |
| New Burlap Cuttings | 3.75 | " | 4.00 |

### Old Papers

(F. o. b. Phila.)

OPA Maximum Prices

| | | | |
|---|---|---|---|
| No. 1 Hard White Envelope Cuts, one cut ..... | 3.37½ | " | — |
| No. 1 Hard White Shavings, unruled. | 2.87½ | " | — |
| Soft White Shavings, one cut..... | 2.87½ | " | — |
| White Blank News.. | 1.65 | " | — |
| Soft White Shavings, Misc. ..... | 2.15 | " | — |
| No. 1 White Ledger. | 2.17½ | " | — |
| No. 2 Ledger, colored | 1.87½ | " | — |
| No. 1 Heavy Books & Magazines..... | 1.57 | " | — |
| Overissue Magazines | 1.67½ | " | — |
| New Manila Envelope Cuttings ..... | 2.65 | " | — |
| No. 1 Assorted Old Kraft ..... | 1.75 | " | — |
| No. 1 Mixed Paper. | .70 | " | — |
| Box Board Cuttings. | .72½ | " | — |
| Jute Corrugated Cuttings ..... | .90 | " | — |
| Overissue News..... | .85 | " | — |
| No. 1 Baled News... | .75 | " | — |

## BOSTON

### Old Papers

(F. o. b. Boston)

OPA Maximum Prices

| | | | |
|---|---|---|---|
| No. 1 Hard White Shavings, unruled. | 2.87½ | " | — |
| No. 1 Hard White Shavings, ruled... | 2.50 | " | — |
| Soft White Shavings, Misc. ..... | 2.15 | " | — |
| No. 1 Fly Leaf Shavings ..... | 1.67½ | " | — |
| No. 2 Fly Leaf Shavings ..... | 1.12½ | " | — |
| No. 1 Groundwood Fly Leaf Shavings | 1.25 | " | — |
| No. 2 Groundwood Fly Leaf Shavings | .90 | " | — |
| Mixed Colored Shavings ..... | .75 | " | — |
| New Manila Envelope Cuts, one cut:.... | 2.87½ | " | — |
| Hard White Envelope Cuts, one cut..... | 3.37½ | " | — |
| Triple Sorted No. 1 Brown Soft Kraft. | 2.50 | " | — |
| Mixed Kraft Env. & Bag Cuttings..... | 2.75 | " | — |
| Kraft Envelope Cuttings ..... | 3.25 | " | — |
| No. 1 Heavy Books & Magazines..... | 1.57 | " | — |
| New Manila Envelope Cuts, one cut..... | 2.87½ | " | — |
| New Manila Envelope Cuttings ..... | 2.65 | " | — |
| White Blank News.. | 1.65 | " | — |
| No. 1 Assorted Old Kraft ..... | 1.75 | " | — |
| No. 1 Mixed Paper. | .70 | " | — |
| Overissue News..... | .85 | " | — |
| Box Board Cuttings. | .72½ | " | — |
| Old Kraft Corrugated Containers ..... | 1.35 | " | — |
| Old Corrugated Containers ..... | .82½ | " | — |
| Jute Corrugated Cuttings ..... | .90 | " | — |

### Bagging

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Gunny Bagging— | | | |
| Foreign ..... | (nominal) | | |
| Domestic ..... | 4.25 | @ | 4.50 |
| Sisal Rope..... | 4.00 | " | 4.25 |
| Mixed Rope..... | 1.00 | " | 1.25 |
| Transmission Rope— | | | |
| Foreign ..... | (nominal) | | |
| Domestic ..... | 2.75 | " | 3.00 |
| Soft Jute Rope..... | 5.00 | " | 5.25 |
| Manila Rope— | | | |
| Foreign .....(nominal) | | | |
| Domestic ..... | 6.50 | @ | 6.75 |
| Jute Carpet Threads. | 3.25 | " | 3.50 |
| Bleachery Burlap.... | 7.50 | " | 8.00 |
| Scrap Burlap— | | | |
| Foreign ..... | (nominal) | | |
| Domestic ..... | 4.00 | " | 4.25 |
| Scrap Sisal..... | 3.25 | " | 3.75 |
| Scrap Sisal for Shredding ..... | 4.00 | " | 4.25 |
| Wool Tares— | | | |
| Foreign ..... | (nominal) | | |
| Domestic ..... | 5.00 | " | 5.50 |
| Aust. Wool Pouches. | 5.50 | " | — |
| New Burlap Cuttings | 5.25 | " | 5.75 |
| Heavy Baling Bagging | 4.75 | " | 5.25 |
| Paper Mill Bagging.. | 2.75 | " | 3.00 |
| No. 2 Bagging..... | 1.35 | " | — |

### Domestic Rags (New)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New Light Prints. | .04½ | @ | .04¾ |
| Fancy Percales.... | .04¾ | " | .05 |
| New White No. 1. | .07¾ | " | .08 |
| New Light Flannelettes ..... | .06 | " | .06¼ |
| Canton Flannel, Bleached ..... | .08¼ | " | .08½ |
| Underwear Cutters, Bleached ..... | .08½ | " | .08¾ |
| Silesias No. 1..... | .04½ | " | .05 |
| New Black Silesias.. | .04½ | " | .04½ |
| Red Cotton Cuttings | .03½ | " | .04 |
| Soft Unbleached.... | .08½ | " | .08¾ |
| Blue Cheviots.... | .04¾ | " | .05 |
| Fancy ..... | .01¾ | " | .02 |
| Washable ..... | .01¾ | " | — |
| Cottons—According to Grades— | | | |
| Blue Overalls..... | .06 | " | .06¼ |
| New Black, Soft.. | .03¾ | " | .04 |
| Khaki Cuttings..... | .02¾ | " | .02¾ |
| O. D. Khaki..... | .02½ | " | .03¼ |
| Corduroy ..... | .02 | " | .02¼ |
| New Canvas..... | .05½ | " | — |
| B. V. D. Cuttings... | .07¾ | " | .08 |

### Domestic Rags (Old)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| White No. 1— | | | |
| Repacked ..... | 3.80 | @ | —* |
| Miscellaneous .... | 3.20 | " | —* |
| White No. 2— | | | |
| Miscellaneous .... | 2.65 | " | —* |
| Twos and Blues, Repacked ..... | 2.20 | " | —* |
| Old Blue Overalls... | 2.25 | " | 2.50 |
| Thirds and Blues, Repacked ..... | 2.20 | " | —* |
| Miscellaneous ..... | 1.80 | " | —* |
| Black Stockings..... | 3.50 | " | 4.00 |
| Roofing Stock— | | | |
| No. 1..... | 1.55 | " | —* |
| No. 2..... | 1.45 | " | —* |
| No. 3..... | 1.35 | " | —* |
| No. 4..... | 1.35 | " | —* |
| No. 5, Quality A.. | 1.35 | " | —* |
| Quality B.. | 1.20 | " | —* |
| Quality C.. | .95 | " | —* |

* OPA Maximum Prices.

### Foreign Rags

(F. o. b. Boston)

| | |
|---|---|
| Canvas .....(nominal) | |
| Dark Cottons.....(nominal) | |
| Dutch Blues.....(nominal) | |
| New Checks and Blues(nominal) | |
| Old Fustians.....(nominal) | |
| Old Linsey Garments.(nominal) | |
| New Silesias.....(nominal) | |

## CHICAGO

### Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White Envelope Cuts, one cut ..... | 3.37½ | " | — |
| No. 1 Hard White Shavings, unruled. | 2.87½ | " | — |
| No. 1 Soft White Shavings ..... | 2.50 | " | — |
| No. 1 White Ledger | 2.17½ | " | — |
| No. 1 Heavy Books & Magazines..... | 1.57 | " | — |
| White Blank News.. | 1.65 | " | — |
| Mixed Kraft Env. & Bag Cuttings.. | 2.75 | " | — |
| No. 1 Assorted Old Kraft ..... | 1.75 | " | — |
| Overissue News..... | .85 | " | — |
| No. 1 Baled News.. | .75 | " | — |
| No. 1 Mixed Paper.. | .70 | " | — |
| No. 1 Roofing Rags.. | 1.50 | " | — |
| No. 2 Roofing Rags.. | 1.45 | " | — |

## N. P. T. A. to Hold Convention Exhibit

The National Paper Trade Association announces that the usual exhibit of paper, paper products, twines and kindred lines will be held in conjunction with their 39th annual convention at the Waldorf-Astoria, New York City, February 16 to 19.

The same arrangements as heretofore will prevail, that is, the entire ninth floor will be reserved for exhibits and, because of the great demand for suites of two or more rooms space in the east wing on the eighth floor will also be available. Announcements with application blanks were sent out from the association office last week.